



Information Technology

2017 Projects



Well connected. Right here



WeITec

Te Whare Wānanga o te Awakairangi

Information Technology Undergraduate Projects



Introduction

Welcome to the compilation of Final Project synopses. These projects are undertaken by Graduate Diploma in Information Technology students and students in their final year of the Bachelor of Information Technology (BIT), from the School of Information Technology at the Wellington Institute of Technology.

The synopses briefly capture the compulsory 450-hour capstone projects component that is available in both of these programmes. By working with the IT industry and various research and development specialists, students have been able to execute projects at no cost.

The Qualifications

The School of Information Technology offers a Masters in IT, Graduate Diplomas and a Bachelor of Information Technology degree, with majors in four specialised areas (and an unendorsed option allowing students to design their own degree).

The four specialised areas of the degree are:

- Programming
- Networking
- Software Engineering
- Information Security

Students also have the option to further specialise in their study by undertaking a Masters and double-majors in three areas:

- Software Engineering and Programming
- Networking and Information Security
- Programming and Information Assurance and Security

The Post Graduate Certificate, Diploma and Masters, along with the two Graduate Diploma programmes give a range of courses to choose from for a final project.

- Graduate Diploma in Information Technology (Level 7) has further options for students to gain a comprehensive understanding of specialist areas within IT and apply that knowledge by working on an IT project.
- Bachelor of IT students can dip extensively into the Graduate Diploma in Information Assurance and Security (Level 7) courses, and are offered experience in how to integrate security policy, practices and technologies into operational structures and explore the principles of survivability and information assurance, and students are able to use knowledge gained from some of the courses in this programme towards their final Project.

Students have the option of an alignment with many international industry certifications like Cisco, Microsoft, ISTQB, etc., and can utilise some credits from this towards their degree affording further depth and a wider scope in developing their Project.

What these projects are really about

A capstone project, such as this, is intended to allow the student to refine the qualities that make them eminently employable. Our students select their own small teams and projects, and then mainly work in independent teams, setting their own goals and pace in line with the project client needs. Students choose their own technologies, methodologies, and management practices. They conduct themselves towards best practices for their, and their client's, particular situation and needs. In other words: Adaptability, responsibility, and perseverance.

With this in mind, and the arbitrary limits of 450 work hours we impose, many encounter 'expert overconfidence' – and must negotiate and manage new goals as the project progresses. This is a real learning curve for all project students, as in most of their studies our lab exercises are designed to just work, but reality is never that tidy. Real problems, real solutions.

The other skill the students develop in this project is teamwork. Until this project the bulk of their studies have been individual efforts, now they must form a team, utilise their diverse skillsets, maintain relationships, and rely on others for essential parts of the puzzle – just like in industry!

For most students this project will be the last time they undertake a project from beginning to end – but they do get to experience the many facets of the project lifecycle, and hopefully make better career choices because of it. As the IT industry runs mainly on projects, and has many specialisations within it, this project will help students find their best place in the industry.

Supporting the students

This year the project coordinators were Robert Sutcliffe and Glenda Shaw. Their task was to find and evolve the projects, thoroughly brief the students, set standards, and support them through the rough patches. They also audited the projects to get projects managerially back on track, co-ordinate all the assessments, and develop this presentation booklet.

The students also had regular access to an academic staff member for advice and guidance on matters ranging from technical, administrative, to relationship management.

Highlights of the Year

The broad spectrum of projects this year had a much larger proportion of speculative projects than previous years where the students built a product for possible sale or a future service income in some way. We even have a couple of games developed, as the students wish to use these to leverage themselves into that industry.

Supporting systems have been developed for community groups and local businesses. Of particular note is the *Tramper Weather Monitor* system, and the *Community Watch Report* system – please check them out.

Enjoy the show, but please be gentle with them – many of them have had a hard time!

If you have a project idea you'd like considered by the students for a future trimester, please let us know: Robert.sutcliffe@weltec.ac.nz or Glenda.shaw@weltec.ac.nz

Robert Sutcliffe
Project Coordinator

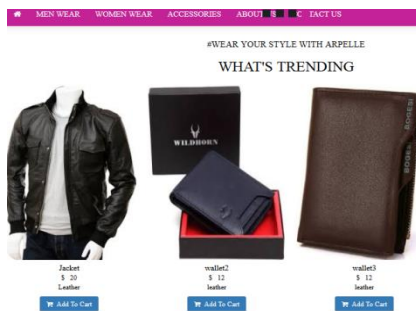
Glenda Shaw
Project Coordinator

2017 IT Projects

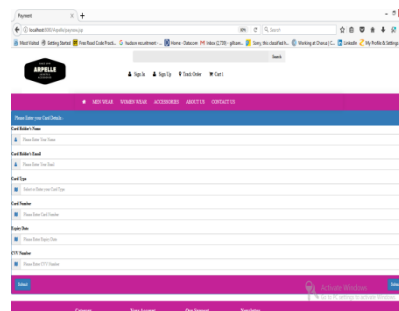
Project Titles	Students	Advisor	Page #
Arpelle	<i>Mehak Chopra; Amanjot Kaur; Rajvir Sing; Samandeep Singh</i>	Clement Sudhakar	7
CCNA Case Studies 1 – 4	<i>Amando Ortega; Francis Tanael</i>	Drew Duncan	8
COBRAZ Retail Web Turnkey	<i>Tom Jnr Misikea; Mark Omadto</i>	Reza Moosa	9
Collection Swap	<i>Xiaoyi Wu; Xinkai Yue; Yehan Wang; Zilong Li</i>	Waqar Khan	10
Cook Book Application	<i>Abdirahman Abdisamad; Ciaran Selwyn; Kanokwan Wongchan; Mung Gershom; Sangeeta Rana</i>	Robert Sutcliffe	11
Community Watch Report Automation (CoWRA)	<i>Shaun Galyer; Hamish Ralfe; Dylan Tiller</i>	Wellington South Community Patrol	12
Earthquake Data Analysis Project	<i>Wael Alansari; Anil Dhakal; Karamjit Nadannia</i>	Masood Mansoori	13
Emugeddon	<i>Jacob Hudepohl; Ciaran Grabham-Madden; Ramon Guevara; Dinh Long Hoang</i>	Nick Tullock	14
Feedback and Rating	<i>Lakhvir Kaur Mann; Hiren Rajani; Balpreet Kaur; Shereen Topple</i>	Terry Jeon	15
GNS3 Evaluation	<i>Erick Poulsen; Michael Kimber</i>	Drew Duncan	16
IP End Device	<i>Mahendran Jaganathan; Nizar Jaber</i>	Clement Sudhakar	17
Journey of Self Discovery Project	<i>Kawindu Lokuge; Navoda Guruge</i>	John Gould	18
Laser Engraver	<i>Mandeep Singh; Gurvinder Singh; Abhimanyu Sheoran; Isharjot Singh</i>	Simon Park	19

Project Titles – continued (2)	Students	Advisor	Page #
Lunch Box v.01	<i>Maria Singh; Shanini Kumari</i>	Terry Jeon	20
Maharaja's Mobile Application	<i>Daniel Kapoor; Aniket Pimpale; Harpreet Singh</i>	Clement Sudhakar	21
Netlab Website Project	<i>Gurwinder Singh Handa</i>	Clement Sudhakar; Chalinor Baliuag	22
Networking Case Study Initiative	<i>Pritam Soma; Rhys Bulmer; Mohammed Essahaty; Dan Kai; Daniel Beatson</i>	Glenda Shaw	23
NetworkJunior	<i>Huda Abdulghani; William Swift</i>	Glenda Shaw	24
One Real Estate System	<i>Supriya; Jaibir Singh Batth; Gagandeep Singh</i>	Chalinor Baliuag	25
Operation First Response	<i>Nicola Haldezos; Robert Hoon, Jason Brown; Frances Jing Du</i>	Leonie Trower	26
Pawsitively Pets	<i>Nikhil Oberoi; Amitoj Dhindsa; Ankit Sethi</i>	Simon Park	27
Peer Evaluation	<i>Xin Jiang GS</i>	Mariki Farrell	28
Peer Evaluation Web Application	<i>Zhiyang Liu; Michael Lee</i>	Mariki Farrell	29
Peer Evaluation 1	<i>Karl Pelayo; Kaynne Tagle; Miles Potton; Rikesh Panchal; Sean Riki</i>	Reza Moosaei	30
Presbyterian Support Central Wi-Fi Deployment Project	<i>Alan Lyford</i>	Ian Hunter	31
Raise your Game – Assess yourself; Build a plan for success	<i>Alex Stewart; Francois Mindiel; Vishan Ambardar</i>	Chalinor Baliuag	32
Raise your Game (Sport Planner)	<i>Gurpreet Singh; Prateek Sachdeva; Gurjeet Singh Dhillon</i>	Terry Jeon	33
Raspberry Pi Secure Tunnel	<i>James Sharp; Patrick O'Connor; Nhut Phan</i>	Manish Singh; Mariki Farrell	34
Real Time Paddle Force and Boat Speed Measurement	<i>Ashishkumar Thummar; Gurpreet Singh</i>	John Gould	35

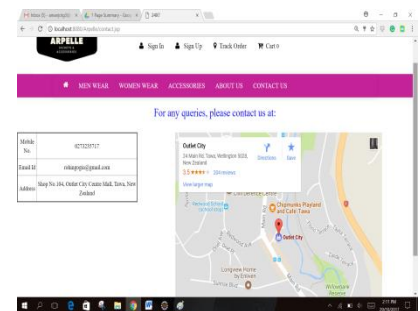
Project Titles – continued (3)	Students	Advisor	Page #
Rooms Project	<i>Jason Eplett; Daniel Taplin; Tyler Fox; Jason Crack</i>	Chalinor Baliuag	36
Sadhana Card	<i>Harmandeep Dhaliwal; Rajandeep Brar; Aniket Kudtarkar</i>	Reza Moosaei	37
SDN Project (Software Defined Networking) Project	<i>Wilfred Zac Miller; Andrew Kim; Laydan Mortensen</i>	Sandeep Vankadari	38
Secure Wi-Fi Banking and Email	<i>Jeeves Perera</i>	Manish Singh	39
Software-Defined Storage	<i>Jonathon Brown; Xianghua Yang</i>	Jeff Echano	40
Student Alumni Project	<i>Alwyn Jose; Jostin Joy; Philip Saji; Sam Sunny</i>	Reza Moosaei	41
Student Time Planner v3.0 (STP) Helps to Manage Time and Task	<i>Charls Kolamkuzhiyil; Arshadip Kaur; Amal Baby; Lata Joshi</i>	Terry Jeon	42
Test Environment Build	<i>Deepak Dhiman Abhay Kumar</i>	Nick Tullock	43
Tramper Weather Monitor	<i>Darwin Nunez; Jesse Bricknell; Liam Crawford; Luke Hamer; Russell DeRitter</i>	Glenda Shaw	44
Ultimate Undead	<i>Jeremy Cains; Justin Croudís</i>	Client-less project	45
Web and Mobile Automation Framework (WAMAF)	<i>Jees Zacharia; Nivya Varghese; Ashmy David; Catherine Aloysius Rozario</i>	Clement Sudhakar	46
Wellington High School Systems Migration	<i>Jonathan Churston; Thomas Fuller; Timothy Nelson</i>	Paul Bryant	47
Yet Another Low Interaction Honeypot (YALIH)	<i>Sukhdeep Kaur; Sunaina Joshi; Prabhjot Singh; Vikas Dadwal</i>	Drew Duncan	48



Home Page



Payment Page



Contact Us Page

INTRODUCTION

Arpelle is an ecommerce website that aims at selling leather and woollen jackets for men and women along with accessories like wallets and belts.

Arpelle is a retail store selling leather & woollen jackets and accessories in Tawa, New Zealand. Our client wanted us to develop an ecommerce website for his store as he was not pleased with the current existing website. Also, he often visits Australia so he wanted to target the Australian customers and the North & South parts of New Zealand.

DEVELOPMENT

This project was developed using Java Eclipse for front end development and MySQL for backend development. This project is basically categorized as RDBMS.

There are two categories of users: customers and admin. Admin has the privilege to add/remove products, update product information and access the database. Users can browse through the products listed on the website and can buy them. The products they select will be added to a virtual basket called shopping cart.

Testing: We used manual testing to test all the webpages. Different test scenarios were created and testing was done as per the test plan.

In order to reduce complexity, we have used V-Model for project methodology. As V-model is

good to use when the requirements are clearly defined and not to be changed in future. In our project, we were already well aware of the client's requirements and decided to test each phase after its completion. Testing activities like planning and test designing happens well before coding, which saves lots of time.

V-Model is meant to be for small to medium-sized projects and our requirements were medium-sized and the client was highly confident and flexible with his requirements, although he needs proper justification for his requirements.

Software requirements:

- Windows XP Windows7 Windows8 operating system and above
- MySQL
- JSP & Java
- Google Chrome or Mozilla Firefox browser.

CONCLUSION

This website was developed in 3-tier architecture so it is very flexible and very secure as security is provided by roles. The user can easily explore the website without much hassle. The system can be used as an online shopping portal in real life. Anyone who wants to sell their items online or wants to build an online store, can use this application for their use.

CCNA Case Studies 1 – 4

Armando Ortega;
Student

Francis Tanael
Student

Drew Duncan
Advisor

ABSTRACT

The CCNA (Cisco Certified Network Associate) Case Studies will help students get a better understanding about the topics they have learned and what they will be tested on. The Case Studies will provide the students with a real life scenario that requires a lot of thinking and problem solving. This will then engage the students to make use of the knowledge they have learnt throughout the courses and showcase their skills and abilities.

Keywords: Networking, CCNA, Case Study, Practical tests

OVERVIEW

Wellington Institute of Technology (WelTec) CCNA courses currently are using a common practice to teach students who are taking the Networking courses. The common practice is used for the CCNA Practical test in which the student partaking the test will be given a straight forward set of instructions that they have to follow. This type of approach is simple and effective but it also has a downside. This approach tells the students exactly what to do leaving no room for problem solving or student to tutor interaction.

Our Team's solution was to create a series of Case studies that the students will be given for their practical tests. The Case Studies will provide the students with an abundance of information which they can use to solve the problems. This in turn will get the students thinking and analysing the information which can then be used to showcase their abilities.

Our project team chose to use an agile methodology, SCRUM, to create and develop the case studies. Using SCRUM for this project allowed our team to follow four phases using steps in order to complete the project. SCRUM is an extensive process that is required to complete a task or reach a project goal. Each sprint consisted of planning, building, testing and review. This was necessary in order to complete and achieve our project goals. During the first sprint our team created a template which we used for all of the case studies as the format. This provided consistency and simplicity.

We took advantage of using Cisco Packet tracer to create a virtualized practical test and design the network topology. The use of Packet tracer became extremely beneficial as it provided network simulation which helped in the development and testing of the Case Studies.

Our project team has taken a lot of inspiration from current CCNA Course materials in developing the case studies. Each Case Study is created to test the ability of the students taking the test, giving students the chance to showcase what they have learned throughout the courses.

TITLE

CCNA Case Studies 1 – 4

AUTHORS

The project team consisted of two students from WelTec who have knowledge and expertise with Networking. The team also has practical experience with the current testing material being used. The main advantage that our project team had throughout the project phase was the experience of taking these courses which are available at WelTec. Each team member of the team has vast knowledge in networking.

[illegible]

The Team has created a Case Study which follows a simple and user friendly format. The Case study will have an introduction followed by a real life scenario in which the students will need to read carefully to get a better understanding of the situation and the problems proposed.

The Client who is one of the Senior lecturers at WelTec has also suggested involving him during the practical tests which results in practical interaction between the tutor and student.

COBRAZ

Retail Web Turnkey

By: **Tom Jnr Misikea** and **Mark Omadto**

Supervisor: **Reza Moosa**

Client: **Robert Sutcliffe**



Fig 1. Home Screen View of Cobraz Website

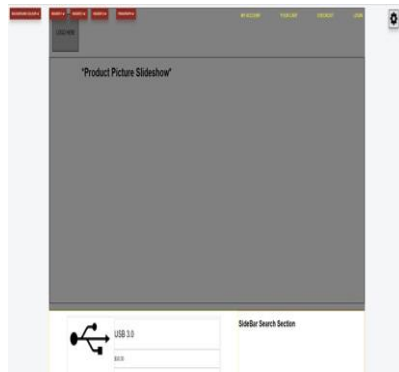


Fig 2. Template Customize Colour Menu



Fig 3. Product upload and display

INTRODUCTION

COBRAZ is a turnkey system for small businesses with no online presence, and the requirements of this project are to develop a turnkey framework to provide small businesses with the means to develop their personal business websites, and to provide training documentation and support to further facilitate the potential future clients and their web endeavours.

In essence, the primary deliverable for this project will be a framework of tools for a small business, which will allow them to independently build and implement a website of their own, from a select series of features.

DEVELOPMENT

COBRAZ is a web turnkey system which is mainly used on any search engine on a computer so you can have a better view of what your website will look like when it's ready.

Agile Unified Process (AUP) is an agile development methodology that builds on, and simplifies the iterative Rational Unified Process which was done in this process.

The login and registration page has been created using its original template on WordPress. Once customers registered and logged in to the website, they can now search which template they would

like to use, but before this happens it goes through the payment process.

The templates will have options to customize your website and also upload images. The Database will have its own server where all the information are stored in and including your profile history. All these components were designed as different fragments; each has its own layout or theme.

CONCLUSION

In conclusion, we can say that this project is for most beginners who want to start up their own small business and have no idea to do scripting. It relates to the idea that sometimes all it takes is one tool or experience that helps you move from one level to the next.

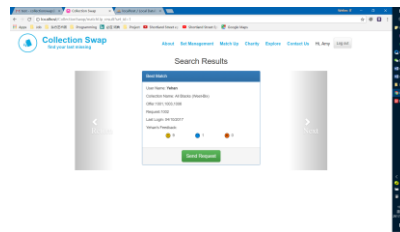
Those who have been tinkering with WordPress themes and frameworks for years but don't have a theme of their own, this is what you're looking for to start your career. Ensuring all functions and components are working fine and now it's time to move onto media!

Collection Swap

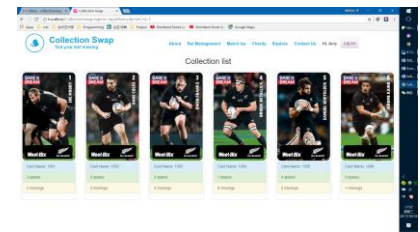
By: Xiaoyi Wu; Xinkai Yue; Yehan Wang; Zilong Li Supervisor: Waqar Khan Client: Robert Sutcliffe



Home Page



“Best Match” search engine



“User Explore” feature

INTRODUCTION

The concept of Collection Swap Project was invented by the client, who wants to provide a healthy and safe environment to kids and their families from the local community in New Zealand for swapping collectables through an online platform.

In recent years, some mainstream retailers such as New World and Countdown supermarkets regularly run card or other cartoon range collections for their promotions. Kids have always been thrilled when the new range is hitting stores. The number of kids are continually increased when these popular collectables were spread out into the school and neighbourhood. However, a bit of violence were discovered occasionally due to the process of on-site swap events.

Therefore, Collection Swap website becomes an opportunity of providing a cost-free swap service to kids or their parents who are intending to complete the whole set. This unique and new experience are all powered by the latest web technology.

DEVELOPMENT

There are six steps in the Collection Swap website design and development process.

1. The first step is to gather information, which involves a solid understanding of the project it is created for. Our web designers started off by asking a lot of questions to help themselves understand the purpose, goals, target audience and content of the project and client's needs in a web site.

2. After all information was gathered, it was time to put together a plan for the website. A list of all main areas of the site was drafted, which serves as guide as to what content will be on the site and is

essential to developing a consistent, easy to understand navigational system, what technologies should be implemented such as WordPress, MySQL, Php.

3. Drawing from the information gathered, our web designers created one prototype design that would look like the final product. Then, we demonstrated the prototype to the client to have valuable feedback – likes and dislikes on the site design.

4. The development stage was started by first developing the home page, followed by a “shell” for the interior pages. Also, the content and elements were implemented and made functional during this phase. The project manager liaised with the client for any additional changes or corrections he would like to have done.

5. Once the product was basically completed, the group tested the website such as the complete functionality of forms or other scripts to ensure the website is optimized to be viewed properly in the most recent browser versions. And then to get final approval from the client, the project group would hand over all required materials and product to the client.

6. In the maintenance phase, the group prepared an Administration system manual, a User operation manual and a list of items for future improvement.

CONCLUSION

To support NZ kids and their families to enjoy the happiness from the collection activities and to interact with others through the swap process in a healthy and safe environment will be our social goal. We are glad to have this great opportunity to share our knowledge and skills to the community.

Cook Book Application

**By: Abdirahman Abdisamad; Ciaran Selwyn; Kanokwan Wongchan;
Mung Gershom; Sangeeta Rana**

Client: Robert Sutcliffe Advisor: Clement Sudhakar and Chalinor Baliuag

ABSTRACT

Cook Book App is an android application for a tablet device. There is limited competition on the market for a cooking application aimed at special needs individuals with Autism and Alzheimer's. This was one of the driving factors to build a successful application that helps the special needs community. The Cook Book application will allow the special needs individuals to cook at their own pace and gain the confidence and passion for cooking.

Keywords: Cook Book App, Agile (Scrum), Tablet Device and Android.

OVERVIEW

Cook Book is an android application that assists in a basic important life activity which is cooking. This product targets individuals with attention deficit special needs such as Autism and Alzheimer's. Many individuals with developmental disabilities have strong visual learning skills, so to capitalize on that, the Cook Book application includes video sessions broken down into steps demonstrating how to cook the chosen recipe.

This application will allow the person to follow at their own pace. It is an effective approach to incorporate into teaching methods that would help the individual to learn how to cook.

The Project team used an Agile (Scrum) methodology throughout the project where a team member acted as the scrum master and a leader for the development team. The project's testing was very successful. It has been tested using the testing support library

in android studio and other android emulator devices.



Figure 1 Main menu/home page.

TITLE

Cook Book Application

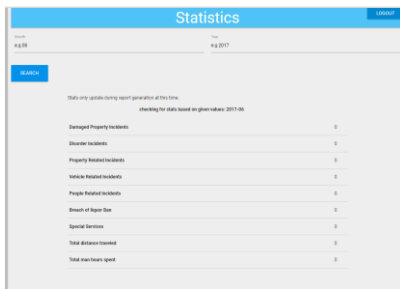
AUTHORS

The team for this project consisted of five undergraduate students currently studying the Bachelor of Information Technology Degree at Wellington Institute of Technology.

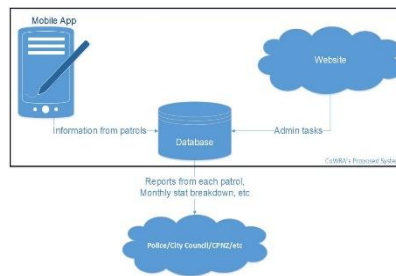
Community Watch Report Automation (CoWRA)

By: **Shaun Galyer; Hamish Ralfe; Dylan Tiller**

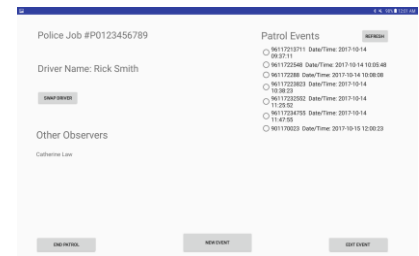
Client: **Wellington South Community Patrol**



Website Statistic Page



System Diagram



Mobile Application Main Screen

INTRODUCTION

The aim of the project undertaken by the Community Watch Report Automation (CoWRA) was to automate the report generation process for the Wellington South Community Patrol. This meant establishing a new method of reporting events during their patrols. The Wellington South Community Patrol (WSCP) conduct regular patrols each week, keeping an ever watchful eye on the community of South Wellington and reporting back to the police. Their current report system was using a pen and paper method, entrusting the police staff to decipher the written reports at the end of the patrol. CoWRA's aim was to increase the efficiency, accuracy, and readability of these reports.

DEVELOPMENT

CoWRA started the project by first gathering the requirements from the WSCP and analysing how best to approach these. The requirements consisted of GPS tracking, report automation, user acceptance, input automation, and statistics gathering. From these requirements, CoWRA derived a system diagram of what we wished to achieve. The final product would be split into three components: database, website, and mobile application.

The database was the centre point of the entire product, therefore it was the first aspect of the project that CoWRA developed. Initially the database was to be hosted on a stand-alone device (Raspberry Pi), but after a review of this approach, and a discussion with the client, it was agreed upon to utilize a virtual private server. This server would host both the database and the website, and produce the reports and statistics as per the requirements.

The mobile application would be the main information gathering tool for WSCP members on patrol. Early in the design phase of the application, it was determined that CoWRA would aim for functionality over design. Though there were some complications during the development, especially with the location gathering and input automation, the application was successfully developed, and was deployed as a beta program.

The website was the main tool for the administration of the database and statistics. Only certain members of the WSCP would have access to this website, and access would not be given to members of the public.

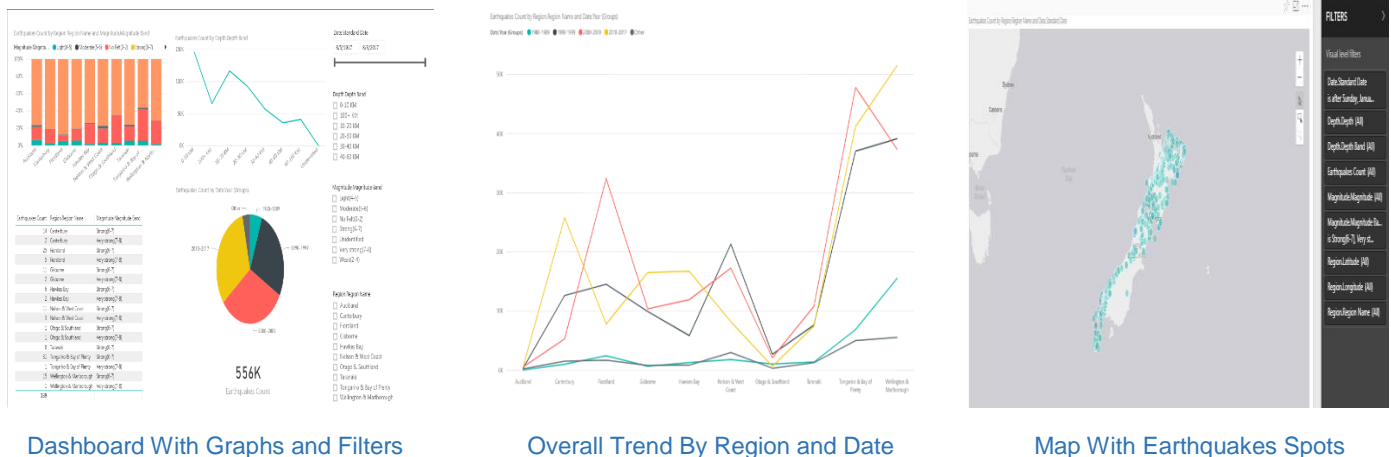
CONCLUSION

The project team CoWRA were mostly successful in their undertaking of automating the report generation of the Wellington South Community Patrol. Though the mobile application is only in beta, its functionality of the application can still be utilised during patrols. The database is able to handle all information given to it, generating reports, statistics, and even sending emails to selected IT groups. The static website is fully functional and live, providing important information and features to the administration members of the WSCP.

Earthquake Data Analysis Project

By: Wael Alansari; Anil Dhakal; Karamjit Nadannia

Supervisor: Masood Mansoori



Dashboard With Graphs and Filters

Overall Trend By Region and Date

Map With Earthquakes Spots

INTRODUCTION

New Zealand suffers from earthquakes every year and the amount of destruction that is caused by such events is enormous. However, researches and different data collection methods have been taking place for a long time in different attempts to try to come up with a suitable method to distribute awareness nationwide regarding such incidents and to possibly take some proactive actions before the occurrence of these events. One of these methods is taken by the Geonet website which collects general hazards data and make it available to the public.

The Earthquake Data Analysis Team have made another attempt, by retrieving earthquake data from the Geonet website for 100 years from 1917 to 2017, to analyse and try to show some trends and general statistics that are easily readable by ordinary individuals and that might be helpful for interested researchers. The team have also promised to make this data easily filtered based on different measures such as region, magnitude and date of incidents.

DEVELOPMENT

This project was developed by, as mentioned earlier, retrieving the earthquake data that occurred between the year 1917 and 2017. The data was retrieved in Comma Separated Values (CSV) files format and has gone through different stages to produce the desired outcome. To accomplish the project in the best possible manner, the team have followed the Agile/Scrum methodology, which is known to be one of the best methodologies, as a management methodology of the project.

The team have initially extracted the data from the files and imported it into a Relational Database where the data was reorganized in different tables and has been cleaned from duplicates and unnecessary bits.

The data has then been imported into an Analysis Database where data has been developed into the Business Intelligence Development Studio (BIDS) to get it ready for the following analysis part of the project.

During the analysis phase, the data that was developed in BIDS has been imported into an Analysis Database where it has been logically connected to each other using a developed hierarchy and measures and dimensions for the data has been set to have ready for the following reporting phase.

As a final part of the project, the data has been loaded to the Microsoft Power BI, which is a data reporting tool that has been released recently, to start developing necessary easily readable charts and graphs about the data that was initially retrieved from the Geonet website. To make the project further useful, a map of New Zealand has been added, in addition to the charts and graphs that shows spots of the earthquake occurred along with different information about each incident. Moreover, a general trend of the earthquakes about the analysed period was produced based on region and date of incidents occurrence.

CONCLUSION

The team have produced the desired product with more than what they initially expected and are full of hope this tool can make a difference in the future about such disastrous events.

Emugeddon

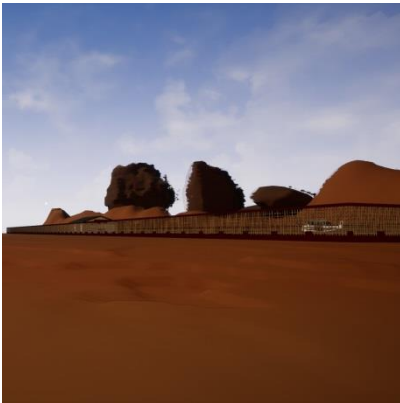
By: Jacob Hudepohl;
Supervisor: Nick Tullock

Ciaran Grabham-Madden;

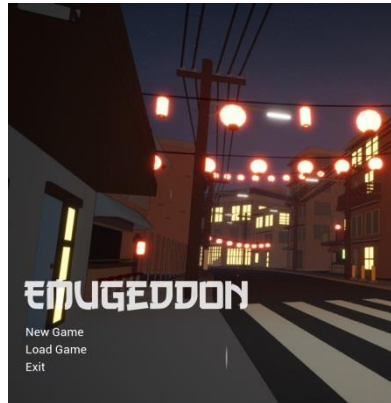
Ramon Guevara;

Dinh Long Hoan

Client: We are a clientless project



Outback Level with Hangar



Main Menu Screen



Monastery Entrance

INTRODUCTION

The main focus of the project is to deliver a video game based on the Australian Emu War. However, the game will not be completely historical but will use the historical events as inspiration to develop our own story and themes, with the game being set in a futuristic world where the Emus have taken over.

This project was developed by our team as a way to complete our Bachelor of IT degrees and contribute to building up a portfolio of work that could help in continuing a career in game development.

DEVELOPMENT

This project was developed using a version of the Rapid Application Development methodology modified to be applicable to game development.

We went through a series of phases during this project, first the *Requirements, Planning & Analysis* phase to plot out what we want and how we are going to achieve it.

Next was the *Design* phase, where we put these requirements into more detail in documentation, and the area covered in each document was allocated to a person, e.g. Long was responsible for the AI.

The third phase was the *Construction* phase where we actually built the program through designing prototypes, showing them to the rest of the group and the advisor, and then revising the prototypes based on their feedback. This phase

also covered the period when we were integrating these separate prototypes into a single program.

The fourth phase was the *Cutover* phase, when we did testing and documentation such as a game manual, and a list of machine specs recommended for proper game performance.

Throughout this whole period we also had many administrative practices which don't fall into any single phase, such as meetings and the creation of progress reports.

The tools used in the development of this project were the Unreal Engine for creating the AI, quests, maps and overall game, and the Blender modelling tool to create all the 3d models.

CONCLUSION

We learned that it's both more and less difficult than we thought to make a game, as in some areas we progressed smoothly while in others we had to scrap everything we were doing because it was too far behind schedule.

Our end result - the game - runs, it has everything you need for a basic game, and certainly continues to amuse us at least.

We have learned a lot along the way about project management, the RAD methodology, and video game development in general and the specific tools we used.

The final conclusion we have come to as to the outcome of our project is that we performed adequately, our product could have been a little bit better, but this was a good learning experience and these skills will be useful in the workplace.

Feedback and Rating

Lakhvir Kaur Mann
Project Manager/ Designer

Hiren Rajani
Developer

Balpreet Kaur
Tester/Reporter

Shereen Topple
Data analyst/Tester

Robert Sutcliffe
Auditor/Reviewer

Terry Jeon
Advisor

ABSTRACT

This project creates the opportunity for small businesses to put themselves on the web to get customers' feedback and to advertise their businesses. This provides a platform for the small-scale businesses and their customers. The other advantage of this website is users can get the basic information of businesses which are available on the website.

OVERVIEW

Retail and service users expect to be able to give feedback on goods and services. Many small businesses in the market can't afford and don't have skills to generate their own websites. This creates the opportunity for small businesses to put themselves on the web to get users' feedback and to advertise their business. This opportunity will lead us to build "feedback and rating" services for small businesses. It is a web-based project. The main purpose of undertaking this project is to provide a platform for small-scale businesses and their customers. The user can provide feedback by sharing their experience related to the services or the quality of the product they purchased/used. This will be beneficial for the small sector shops and businesses, as they are not capable to put their businesses on the web to enhance their business.

The goal of the project is businesses can analyse their products and services. It also provides an opportunity to their users to share their experience. Providing a platform for customers and small sector businesses to communicate with each other.

This project is initiated on PHP language platform with the help of MySQL database and Adobe Photoshop for designing.

The reason why we have selected this project is because in the market there are many websites such as www.yellowpages.co.nz, which provide the same services. But these websites lack some features such as no filters to minimize the offensive comments, no communication platform between businesses and their customers etc. This project is to overcome that. We are going to add some new features such as minimizing the offensive or abusive feedback/comments by using some sort of filters. Other websites offer free-form text and we will try to minimize this feature using static questionnaires as vendors will have the ability to customize exactly the questions needed to be asked. So, it can be quite specific to their needs and we will try to minimize the scripted comment. Another benefit this website has to offer for users is that they can find the basic information of businesses as well. In the current market, there is a huge opportunity for such service as all the users can get the information on businesses on a single platform.

TITLE

Feedback and Rating

AUTHORS

The project team consists of four international students who are completing their Graduate Diploma in Information Technology.

GNS3 Evaluation

Erik Poulsen
Student

Michael Kimber
Student

Drew Duncan
Advisor

ABSTRACT

The GNS3 evaluation was a project idea that came about from the running of Advanced Networking 1 (a networking course offered by the Wellington Institute of Technology (WelTec)) in 2017. The idea of this project was to evaluate GNS3 as a suitable tool for the next run of the course.

OVERVIEW

During the Advanced Networking 1 course students were required to use UNetLab (a network simulation tool) hosted on Amazon's AWS Cloud Compute platform. This tool was used to simulate large networks that the school didn't have the capability to host on real networking gear. The students in the course had many difficulties with the UNetLab due to software bugs that caused loss of data. These issues caused the need to search for a new network simulation tool to use.

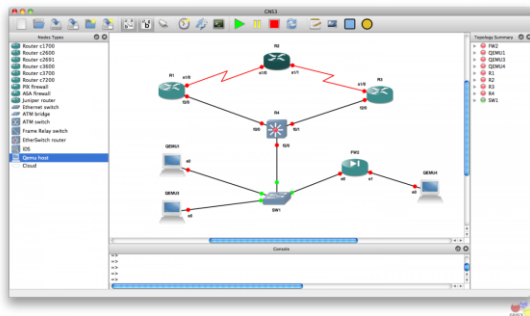


Figure 1: GNS3 simulation interface

GNS3 was selected as a potential tool to replace UNetLab and a project was formed around the evaluation of the tool. The project team offered to expand the scope to include a second simulation tool in the evaluation and settled on EVE-NG. Both of these tools were evaluated against UNetLab so that there was a reference point to the results gathered. During the evaluation the team was required to design a test network on which to simulate the Advanced Networking 1

curriculum. Additional networks were built to simulate the curricula from the Advanced Networking 2, Carrier Technology and Advanced Carrier Technology courses. These simulations allowed an element of future-proofing if any of these courses needed to go to a simulation-based teaching model in the future.

Each tool was installed in various environments to test how well it performed on different operating systems and on hosts with varying levels of computational power.

Throughout the project the team scored the performance of the tools. The scoring of these tools was reliant on whether they would support certain protocols as well as how the tool behaved during the tests. Each tool needed to be able to run various Cisco Routers, Cisco Switches and Alcatel Lucent Service Routers.

The results of the testing were compiled into a report with explanations and recommendations to the school accompanied with working installations of the tools hosted on AWS.

TITLE

GNS3 Evaluation

AUTHORS

The project team consisted of two students completing their Bachelor's Degree of Information Technology.

IP End Device

Mahendran Jaganathan
Student

Nizar Jaber
Student

Clement Sudhakar
Advisor

ABSTRACT

The usage of network devices are increasing every day. In particular, Information Technology inventions need to connect with a network to do the job. The usage of network devices cause overload on the network and troubleshooting is often needed. In this situation network administrators/ technicians are troubleshooting the issues using giant desktop computers or laptops. Even the smart phones are more efficient than computers, though it is limited in the network operations. Our new invented IP End Device performs all the network operations like a desktop computer and is compact in size.

Keywords: Network device, IP end device, compact computer, network hacking tool, compact network tool.

OVERVIEW

Desktop computers are the only tool to perform the network operations for troubleshooting and identifying network details. In recent decades, the systems are being upgraded in all the technologies. Smartphones are smarter than computers and they can perform more than a computer. Even though in the networking field, networkers are still using the old method to fix the issue. It may cause inconvenience most of the time. Network troubleshooting may be required on-site in most cases, where a computer needs to be set up. The setting up of a desktop computer is not a simple task. Even the laptops are not convenient in some cases. This device provides a solution as it is compact in size. The 7-inch touch screen can be connected to the device to display the outputs.

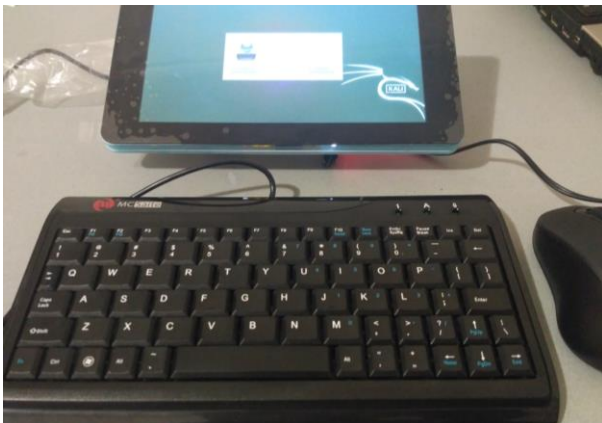


Figure 1 IP End Device

In addition, it supports various operating systems such as Windows 10 Core, Raspbian, Kali Linux. Changing the operating system can be done by simply swapping the memory card. The device can be used as a computer because it has standard VGA and HDMI outputs to view on a screen. The salient features of the device are 1 GB onboard RAM and 64-bit quad core processor. The robust

device can be operated with a standard 5-volt power supply. A power source from the OTG of a smart phone or a power bank is enough to run the device. This is the only computer that can work with 5 volts power supply.

The simple construction of the device makes it cheaper and easier to troubleshoot. While comparing the cost of a desktop computer, it is 20 times cheaper and more efficient.

Here are some key features of IP End Device

- Compact in size and robust in applications
- Easy to change operating system by swapping the memory card
- Easy to troubleshoot and replace the components
- Can be used in remote locations
- Supports standard 5-volt power supply powered by micro-USB
- Can be used as a compact computer by connecting to a standard HDMI/VGA monitor
- Simple construction and cheap in cost
- Both touch and keyboard, mouse input facility
- Memory can be extended by external drives

TITLE

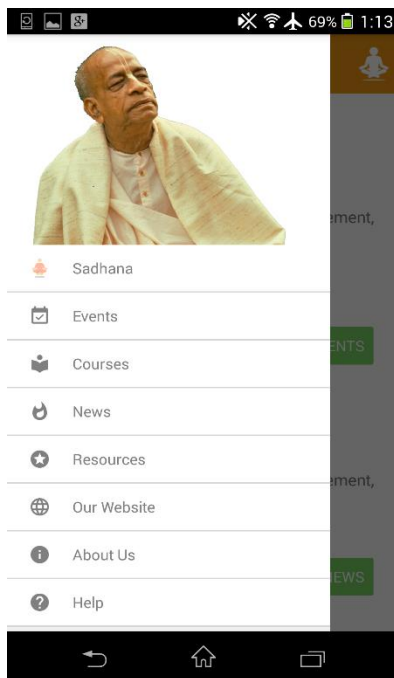
IP End Device

AUTHORS

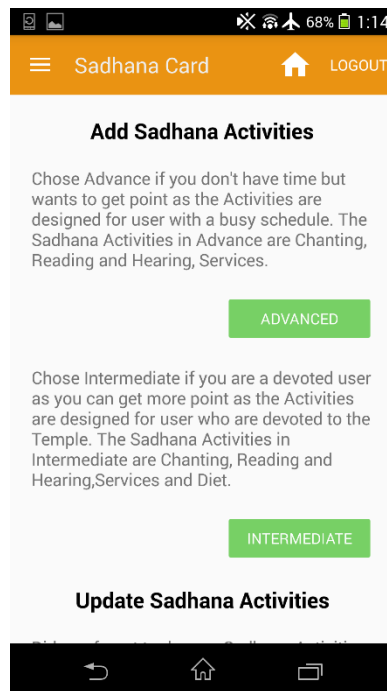
The project team consists of two students completing their Graduate Diploma in Information Technology at Wellington Institute of Technology.

Journey of Self Discovery Project

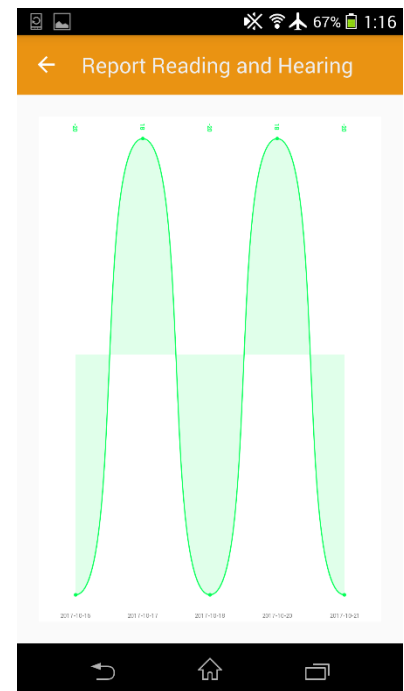
By: Kawindu Lokuge; Navoda Guruge Supervisor: John Gould Client: Sandeep Vankadari



Main Menu of JOSD Mobile App



Menu for managing activities



Report for user selected time period

INTRODUCTION

The JOSD (Journey of Self Discovery) project has two sub-projects, first one to develop Web APIs for JOSD central system, second one to develop the cross platform mobile application which support Android, IOS & Windows and fully synchronize with the JOSD central system.

JOSD mobile application help the ISKCON devotees to manage their religious activity and track the progress using reports which are provided by the system. Meantime devotees can use the mobile application to check the information which is published on the JOSD website.

DEVELOPMENT

JOSD Web API project is based on the RESTful APIs with ASP.NET Web API 2. Visual Studio is the main tool which was used to develop the system. This subproject included 13 main categories which covered the JOSD central system. Each category has own HTTP methods depend on the scenario of data manipulation. All the Web APIs were tested using Postman tool before and after publishing the system on the Windows Azure along with JOSD central database which was developed by the project developer.

The Journey to Self-Discovery multi-OS mobile solution includes three mobile applications to support IOS, Android and Windows mobile applications. The mobile application was developed using Microsoft Xamarin. The JOSD mobile is fully synchronized with the JOSD central system. This mobile application includes two major areas, first one to display the temple's activities, events and other information and the second one for devotees to register, login, manage their religious activity engagement, and track the progress of their engagement in religious programs using reports which are generated based on the points which are calculated by the system.

CONCLUSION

The JOSD project was delivered to the client after user acceptance testing was very successful. The project team completed all the main requirements which were proposed at the beginning of the project. The client is very happy with the outcome as the system is operating very successfully. This will add huge benefits to both the ISKON temple and their devotees.

Laser Engraver

By: **MandeepSingh;**

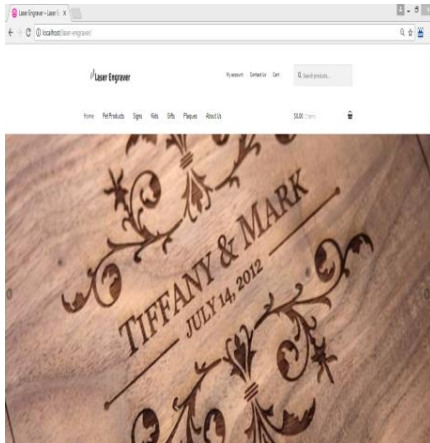
Gurvinder Singh;

Abhimanyu Sheoran;

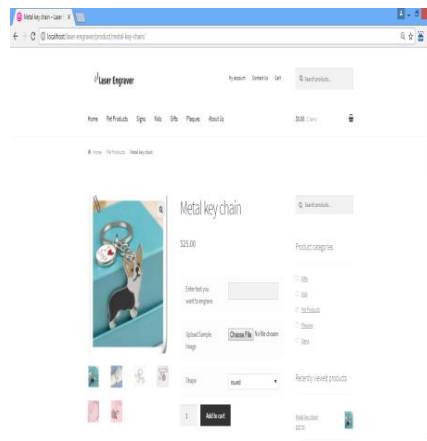
Isharjot Singh

Supervisor: **Simon Park**

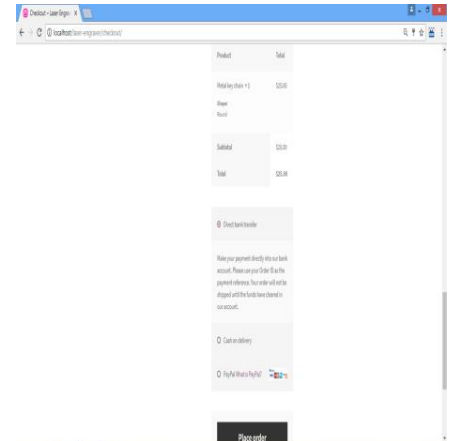
Client: **Glenda Shaw**



The homepage of the website



Product customization page



Products checkout page

INTRODUCTION

Laser engraver web services is a web based portal used for buying various engraved products like tags for pets, signage for gates etc. The products purchased could either be standard or customised.

The client has been in the business of engraving products using lasers for a while and did not have any kind of web presence, therefore missing many customers who expect the business to be online.

With this product the client will have not only web presence but will also have more customers which will give more business to her.

DEVELOPMENT

This project has been developed on a content management system (CMS) based platform called WordPress. This platform provides ease of development with integration of PHP language.

In order to run the Word Press on a machine, a local server called WAMP is required, which is installed in the client's machine in our case.

It comes with phpMyAdmin tool which is used for the development of the database. All the tables generated in the database are created in SQL format. Once the database is created, all the SQL queries can be executed from the same tool itself.

CONCLUSION

The project has successfully met the client's and academic requirements and been handed over to the client in all respects.

Lunch Box

V.01

Maria Singh
Student

Shanini Kumari
Student

Terry Jeon
Advisor

ABSTRACT

Lunch Box is an innovative application designed for small food vendors who are willing to sell their home made food online and for consumers who are willing to purchase the home made food from these sellers.

Keywords: Mobile Application, Android Application, Food

OVERVIEW

In a fast-paced world, where going to work is a necessity for most of the people in New Zealand, most people go to work in the morning and return home in the evening. It is becoming hard for the individuals to stay healthy as they don't get enough time for cooking food for themselves and their loved ones. Therefore, they end up purchasing food from restaurants or food courts.

This gives us an opportunity for developing a market place for such food vendors and customers. The Project team is proposing a digital marketplace named "Lunch Box" where small time food vendors and customers can come together for selling and buying homemade and customised food.

Purchasing food from restaurants and food courts has become monotonous and does not give the consumers the satisfaction they get from home-made food. On the other hand there are small food vendors who are selling home-made food. They are willing to supply food according to customers' needs and wants. However, they are having difficulties selling their food, as the consumers and the sellers do not have a common platform where they can directly communicate with each other.

In version 1, "Lunch Box" will support registration for both food vendors and consumers. The food vendor can customise a food catalogue. They can create or delete a catalogue. The vendor can view the received order, view details of the user who has placed the order. It will allow the consumers to search for a vendor, view food items offered by the vendor, place an order for food items and make payment for the order. Customers can also view the order list initiated by them and can give feedback. Lunch Box app also gives opportunity to the user to reset the password in case they forgot the password and receive the new password on their registered mobile number.

The next version of the app can support functionalities such as update user profile, Web based UI, ios app, search for vendor in specific area, order by negotiation, post order change in

delivery address by customer and analytics such as allowing the vendor to view food items in high demand, what food item had negative feedback etc.

This project was completed successfully by the project team. It took the team 3 months to complete all the requirements of the project.



TITLE
Lunch Box v.01

AUTHORS

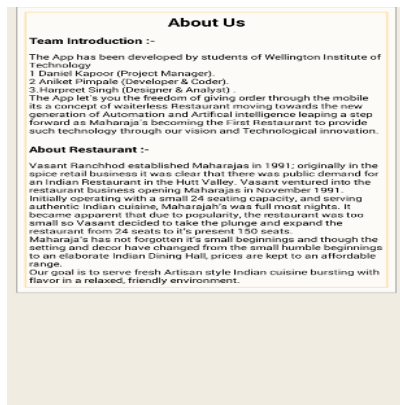
The project team consisted of two students from different backgrounds and expertise working together to complete the third-year project as part of their Bachelor's Degree in Information Technology.

MAHARAJA's MOBILE APPLICATION

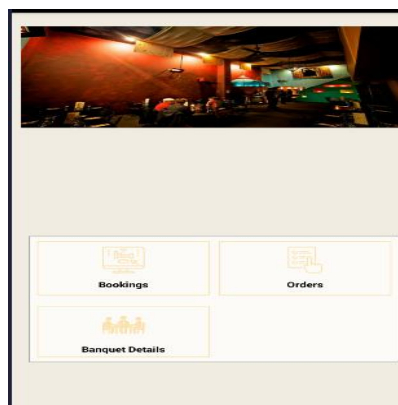
By: Daniel Kapoor;
Advisor: Clement Sudhakar

Aniket Pimpale;

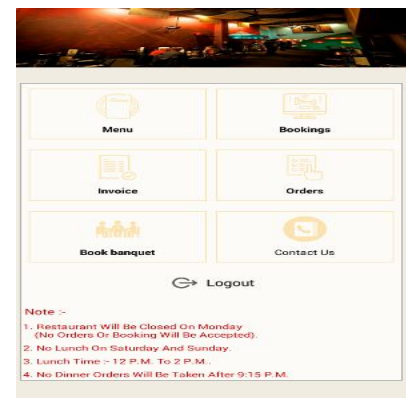
Harpreet Singh
Client: Kalpana Ranchhod



About Us



Staff Front Page



User Front Page

INTRODUCTION

This Application gives you the freedom of placing orders through your mobile. It's a concept of waiterless restaurants moving towards the new generation of automation and artificial intelligence leaving a step forward as Maharaja's is becoming one of a very few restaurants to provide this kind of Technology through our Vision and Technological innovation. This Application will provide the customers to book a table, order food for dining or take away and can pay at the counter or online.

DEVELOPMENT

There are many restaurants all over world which use this kind of technology where you just book a table, sit at the table and order food and then you receive food and you pay the bill from the application itself with the help of payment gateway. The Client who is the owner of the Maharaja's Restaurant wants to move hand in hand with the technology and so wants us to develop an application which has all the basic features and some additional features like ordering food from app while sitting at the table to minimize the disturbance of waiters.

Maharaja's mobile application has three different users namely Administrator, Staff and User. The User has to register to use the Application. After registration the user can login to the system. Once the user logged in there is no need to login to the app again to use it until and unless user logouts. The User can book a table, place an order for takeaway, delivery or dine-in and can also book a Banquet and place order for Banquet from specific Menus and the invoice is sent to them on their email ID.

Staff can login to the app and can book a table for a user and can cancel booking. Staff can view orders which are placed by the customer and can also view Banquet details.

Administrator can login to the application and view tables, add tables and delete tables. They can book a table for users and cancel bookings; view all the reports of the bills. Admin can add new sub categories in menu, can add menu, update and delete menu and can also view Banquet details.

Microsoft Visio.net is used as the connectivity between the local database available on GODADDY and Android application.

The team used open up methodology for implementation. After each and every phase the application was tested for errors and then solved and moved on for development of next phase. Each phase was closed after all the tests were passed. And when the final phase was developed it was tested by some additional users for feedback and to check for errors.

The project was completed in the time frame of 13 weeks and a total of 450 hours.

Additional features like push notifications, development of application in IOS and Windows, linking of Maharaja's website with the app and many more can be developed in future.

CONCLUSION

The Maharaja's mobile application has been developed to be used by the restaurant named as Maharaja's. The application is developed to make Maharaja's Restaurant move a step towards digital world.

Netlab Website Project

Gurwinder Singh Handa
Student

Clement Sudhakar
Advisor

Mick Jays
Client

Chalinor Baliuag
Advisor

ABSTRACT

The Netlab project is a WordPress based ecommerce website to purchase IT products online. Apart from ecommerce it is a complete portal for all IT needs, like product and services.

Keywords: WordPress, WooCommerce, MySQL, HTML, CSS

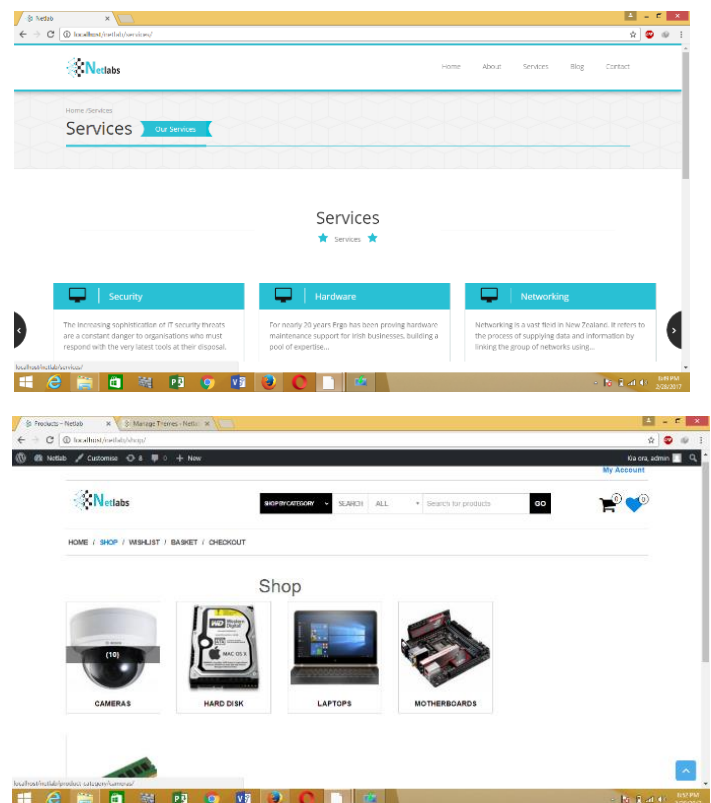
OVERVIEW

The Netlab website is the complete solution for both IT services and product. The reason to develop this project is to make a platform where users can easily find IT services according to their needs and latest news blog post to get updated knowledge about various IT topics. Ecommerce part is useful to search, view and buy any IT product.

This is basically a very common need to find services and product on the same platform; I have tried to merge the different platforms into one so that users can easily get what they want. The Blog is a very useful feature to get knowledge about what is happening in IT.

Users can get updates on various topics. The site has complete ecommerce functionality where users can order any product, track their orders, and cancel their orders, etc.

Payments can be done through PayPal payment gateway. In short, we have everything under one roof.



TITLE

NetLab Website

AUTHOR

The project was completed by Gurwinder Singh Handa as part of his completing the Graduate Diploma in Information Technology Level 7.

Networking Case Study Initiative

By: **Pritam Soma;** **Rhys Bulmer;** **Mohamed Essahaty;** **Dan Kai;** **Daniel Beatson**
Supervisor: Glenda Shaw *Client: Ian Armstrong*



INTRODUCTION

Currently level 6 networking papers being taught at WelTec are not giving students enough application of skills and knowledge in their practical assessments.

In the current system students are given step-by-step tasks which they are to repeat what they are taught to complete assessments. This does not give enough challenge for students at a level 6 standard.

Our client Ian Armstrong proposed we create a new set of practical assessments for the students that would test their knowledge better and allow them to give more application of their skills and knowledge.

The Networking papers that we were assigned to create these assessments for are IT6265 Networking 3, IT6270 Networking 4, IT6281 Network Infrastructure and IT6289 Wireless Technologies.

We were required by our client to create two sets of case studies for each networking paper.

DEVELOPMENT

The project team planned to solve this problem in the form of creating and developing case studies for each of the networking papers. Case studies give students a real-world scenario and include tasks that students will need to evaluate and apply knowledge to solve. The goal would

ultimately end up with students learning more from their practical assessments.

The project team followed a waterfall-style methodology derived from a whitepaper from NASA on developing case studies. Our methodology consisted of six phases to follow.

Four of our team members were assigned one networking topic each while we were led by a project manager who handled quality assurance throughout the project.

CONCLUSION

Over the course of 14 weeks the team designed and developed two sets of case studies for each of the networking papers.

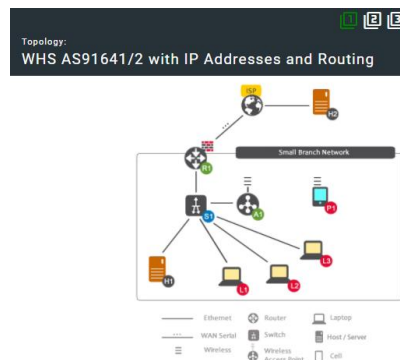
We met the requirements provided by our client and added some extra value by including some important topics that have not been included in previous practical assessments.

Our case studies provide the following benefits over the existing system:

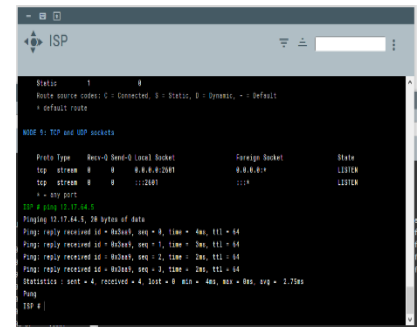
- Provides better application of knowledge and skills
- Gives a real world scenario
- Better retention of knowledge
- Includes new technologies not assessed previously
- Alludes to technologies.



NetworkJunior



A network topology for NetworkJunior



A NetworkJunior command line interface

INTRODUCTION

There are no educational Networking Simulators that cater specifically to secondary school and first year University students that have little to no setup required.

NetworkJunior is a web-based network simulator that offers users a unique approach to network simulation with minimal setup time. It has been in development part time since early 2016 by Ian Armstrong who is a Network Engineer at Wellington Institute of Technology.

Ian required the NetworkJunior Team to create classroom activities that specifically cater to New Zealand secondary school and University Networking IT curricula and to conduct research into how NetworkJunior could be improved, and then to promote NetworkJunior to a wider audience.

DEVELOPMENT

The Team conducted research into the IT curricula, contacted schools and carried out interviews with school staff to gather as much information as possible to develop activities for NetworkJunior.

The Team then evaluated other simulators and compared them with NetworkJunior, assessed every feature of NetworkJunior, and suggested changes to match the researched curricula and to make NetworkJunior more engaging and interactive for users.

Finally the team researched ways it could promote NetworkJunior to its target audience and then carried out promotion over social media and contacted schools throughout New Zealand.

CONCLUSION

The Client, Ian Armstrong, was provided with a specific set of classroom activities for NetworkJunior that match each networking achievement standard used in New Zealand secondary schools, and also cater to first year University students.

He was provided with numerous change recommendations including:

- Changes to features of NetworkJunior.
- Change so that NetworkJunior can cater to the researched IT curricula.
- Change to make NetworkJunior more engaging and interactive.

Finally NetworkJunior was promoted to over 30 New Zealand secondary schools, IT Networking forums, Networking social media sites, and social media pages were created for NetworkJunior.

The Team believes it has provided the Client with all the information he needs to turn NetworkJunior into a polished network simulator that is unique in providing little to no setup time and targeted towards secondary school and first year University students.

One Real Estate System

Supriya
Student

Jaibir Singh Batth
Student

Gagandeep Singh
Student

Chalinor Baliuag
Advisor

Diana Eyes
Client

ABSTRACT

One Real Estate is a New Zealand owned and operated real estate agency. There are limited channels available for the customers to reach services of One Real Estate agency and they also have a manual system for managing their daily operations. There is a pressing requirement to have an online system to deal with the selling and buying of properties, as the business is expanding rapidly and the number of customers, administrative staff and also competitors are increasing every year. One Real Estate System Project has designed an online system for selling, buying and renting a property.

OVERVIEW

ANT Services offer a range of services dealing with the property. Their day to day operations such as client requests for buying, selling or renting a property, etc. are manual processes. These processes require a lot of time and effort from administration staff to keep the records straight. Automating this process will be a huge benefit to both the One Real Estate agency, and their clients. Consequently, One Real Estate agency wishes to develop a website to streamline their real estate business, operations and boost sales.

This will allow them to address their customers' needs more efficiently and also build confidence in their brand and to give customers important incentives being one of their strongest sales tools. This will release administrative staff for other tasks. A number of Web development platforms, database management systems and methodologies were considered.

The proposed One Real Estate System will provide the clients with an interface for buying, selling and renting a property. Customers can upload the details and images of their property for selling or make it available for renting after registering and logging into the website.

Moreover other clients who want to buy or rent the properties can view these details in respective sections for buying or renting a property.

Fig 1 One Real Estate System



TITLE

One Real Estate System

AUTHORS

The project team consisted of three students completing their Graduate Diploma in Information Technology.

Operation First Response

By: **Nicola Haldezos; Robert Hoon; Jason Brown; Frances Jing Du**

Client: **Paul Bryant**

Advisor: **Leonie Trower**

ABSTRACT

The Operation First Response project aims to deter academic dishonesty for all online assessments held in WelTec's B-Block classrooms by providing the capability for real-time forensic analysis of system artefacts, logs and records for suspected dishonest conduct during an exam session as a proof of concept. This system will also give staff at Wellington Institute of Technology full visibility and insights into the traffic on the school's live network.

Keywords: *Networking, Digital Forensics, Security, Monitoring, Cheating, Dishonesty, Detection, Academic*

OVERVIEW

Increased reliance on digital delivery of academic assessments unintentionally creates multiple opportunities for dishonest intervention by students. A robust, evolving suite of security protocols is therefore required to detect, monitor and capture evidence of such incidents both in real time and for permanent record. Wellington Institute of Technology (WelTec) has enforced strict rules and regulations during the exam period by having external invigilators who supervise the exams. While there are dishonest academic practices which are detected, unfortunately in many cases the evidence will be altered or lost due to the time that elapses before this evidence can be acquired. As such the School of Business and Information Technology recognises that as long as the use of online assessments continues, there needs to be an adoption of tools and technologies to better monitor the activities of students during these assessments.

The solution the project team aimed to deliver has been broken down into four stages to provide full-fledged real-time monitoring, evidence analysis and image/artefact acquisition capabilities. The overall system comprises the deployment of GRR Rapid Response, implementation of NetFlow Monitoring, implementing Passive DNS for any wireless traffic, aggregation of System Logs and finally provide an Elasticsearch Logstash and Kibana console for analysis.

In order to fulfill the project objective in providing a working and reliable academic dishonesty detection system, a plan was devised with the client to use free and open source software deployed on virtualized machines, thus saving a huge amount of potential costs. WelTec had specifically indicated what open-source software they ideally wanted to use, along with providing access to sufficient networking equipment and virtualization software. The next step was to construct a suitable networked environment with domain services that somewhat emulated the client's production network. This was then used as a platform to deploy, configure and thoroughly test all components of the academic dishonesty detection system which would then demonstrate proof of concept and successful integration between all separate components. Relevant supporting documentation was developed at every stage throughout the project and once the client was satisfied, we aimed to then work with the company and their IT administrators to rollout over the live network.

Our team has chosen to adopt the Crystal Methodology, taking a hybrid approach between Crystal Clear, and Crystal Orange. We have also adopted the five phases in the PRINCE2 project life cycle to add some coherence and guidance throughout the project.

WelTec has decided not to carry out a live deployment of the solution delivered through the project due to operational risks involved in live production environment deployment. However, the final product was submitted as a proof of concept.

TITLE

Operation First Response

AUTHORS

The project team consisted of four students completing their third year project as part of their Bachelors Degree of Information Technology.



Pawsitively Pets

Nikhil Oberoi
Student

Amitoj Dhindsa
Student

Ankit Sethi
Student

Simon Park
Advisor

ABSTRACT

Pawsitively Pets a.k.a “pampermypets” is a live e-commerce website that allows people to look for and purchase pet products from a vast variety, as well as book grooming sessions for their pets, if needed. Customers can contact the administration via email and phone. The administration can manage the inventory in real-time and provide some special offers to the products they want.

Keywords: Pamper My Pets, Online shopping Portal for pet products, Online Comparison of product prices and unique platform for all suppliers, grooming appointment for pets.

OVERVIEW

Our client, with more than a decade of experience working with pets and immense love and affection for them, wanted us to develop a website to sell pet products online as well as providing grooming sessions for pets. The website features more than 100 products for people to choose from which have been categorized strategically so that they can easily select the desired product.

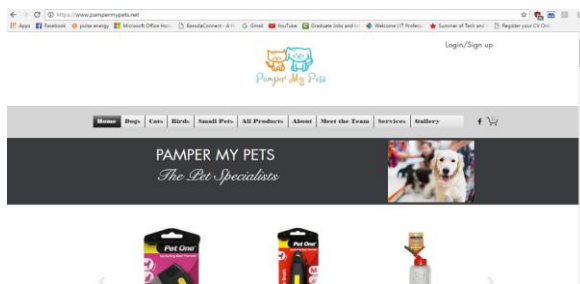


Fig 1 Pamper My Pets Home Page

Log-in / Sign-up

Users can sign-up or log-in by clicking on them and providing the mandatory details. Other options like sign-in with Facebook and Google+ are also available for the convenience of customers.

Tools and Platform

To build this website we have used **Wix** which is one of the best online platforms available for website creation, keeping the client background in consideration, as the previous website that the client owned was made using the same platform.

This also provides an inventory management system which is very easy to use and manage.

Methodology

We have used OpenUP methodology for our project which is an agile and Unified Process that contains the minimal set of practices helping teams to be more effective in developing software.

Support and Help

We have provided training manuals and videos to the client so that she can manage the website on her own in the future. Administration can add and remove products anytime and change grooming session hours as well as manage the other content of the website.

Advanced Features

- Basic Search Engine Optimization has been done to improve the ranking of the website.
- There is no online payment method or booking method available on the website, but customers can provide offline payment to the client's bank account whose details are provided at the time of invoice generation and via email.
- Inventory management, automated emails and email marketing etc. are some additional features provided with this.

TITLE

Pamper My Pets (Pawsitively Pets)

AUTHORS

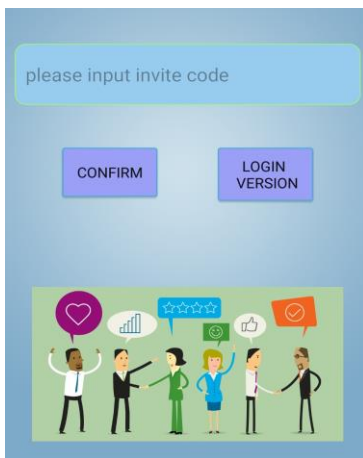
The project team consisted of three students completing the IT7351 Project course in Graduate Diploma in Information Technology, Level 7.

Peer Evaluation

By: Xin Jiang

Supervisor: Mariki Farrell

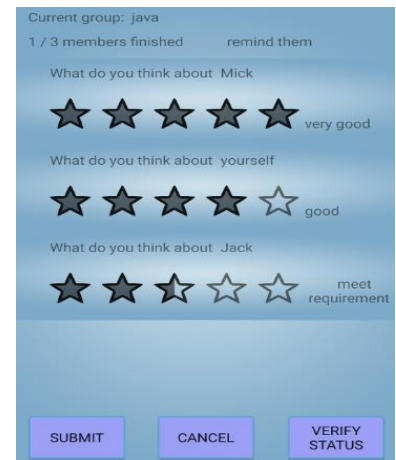
Client: Robert Sutcliffe



Login with code or username



Create and join groups freely



Evaluate members and check the status

INTRODUCTION

The development of a website program to allow any group of people to evaluate each other's skill, task or opinion and report as a group analysis or summary. In this case the program was designed for use within a school. Within this system, teachers can set the topic to be evaluated, with the evaluation being performed by students.

DEVELOPMENT

The language used was PHP. The app can only run on android mobile phones higher than API 14. Several pages with associated debut tests were developed which included an Invite code page, Login Page, Register page, Home page, Joint evaluation page, evaluation creation page, submit feature and associated result reporting facility.

The system met the test requirements.

In addition to the program development user instructions were written as well as installation instructions.

The project, at this point, does not have flexibility for use in multiple situations. Time constraints were an impact on this project, however it was possible to achieve the basic structure of the website program and to be able to identify future development opportunities.

CONCLUSION

This future development could include an email function to invite (participants) students into the group and have an email reminder. More customisation of evaluation questions, data analysis, and reporting features could be added.

Edited

Peer Evaluation Web Application

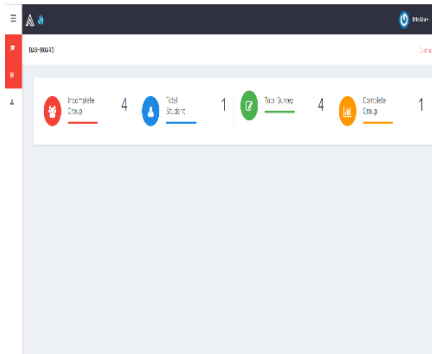
By: Zhiyang Liu and Michael Lee

Advisor: Mariki Farrell

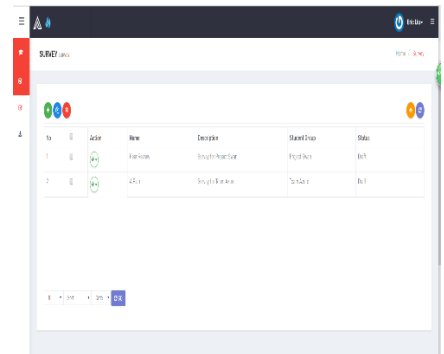
Client: Robert Sutcliffe



Login Page



Dashboard Overview



Peer Evaluation Survey Overview

INTRODUCTION

The demand for peer evaluation and peer review within both educational and non-educational organizations is increasing. Peer evaluation has become an important and efficient technique to evaluate group strengths and weaknesses and monitor team performance. This project developed a "Peer Task Online" website to provide smart solutions to prepare, organize and structure all peer evaluation activities for many users.

DEVELOPMENT

The project had 4 distinct phases of development:

Phase 1: Planning: included clarifying client requirements.

Phase 2: Installation System Requirements, included:

Apache, nginx, or another compatible web server, PHP >= 5.5.9 >> Higher, MySQL Database server, OpenSSL PHP Extension, Mbstring PHP Extension, Tokenizer PHP Extension, Module Rewrite server, PHP_CURL Module Enable.

Phase 3: Implementation of Web Interface, comprised of:

- Laravel as web developing environment
- Installation of Sixmo template
- Use PHP as main developing web language
- Page CMS for frontend form creation and management.

Phase 3: Implementation of Modules focused on:

- The development of detailed modules and put them together (Modularization)
- Database installation and creation
- Login and security module
- Caches clearance
- Email
- Translation
- Setting up social network
- Many advanced features including: sorting, radio buttons, form design, checkbox, upload, mailto, database table synchronization and group management.

Phase 4: Testing

- Create test cases and consider test scenarios arising from different business workflow
- Run manual test through the whole website
- Record and document findings
- Generate test report
- Reflect and pass to developers for bug fixing and system improvement.

CONCLUSION

The unique website application with URL name www.thepeertaskonline.com provides ease of use, simplicity, and confidential evaluation results to a group of students. It is also a good companion and workplace platform for many organizations to carry out peer review sessions.

Peer Evaluation 1

By: Karl Pelayo;

Kaynne Tagle;

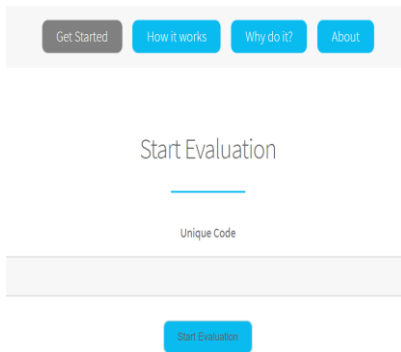
Miles Potton;

Rikesh Panchal;

Sean Riki;

Supervisor: Reza Moosa

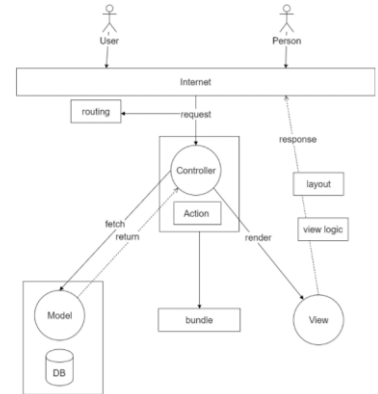
Client: Robert Sutcliffe



Home Page



Fav Icon Logo



MVC Diagram

INTRODUCTION

PeerEval.Me is a web based system which is designed to provide a platform for people to evaluate their peers. The system is relying on honest answers from the evaluators to function correctly. This in turn creates a reliable source of information detailing the communication, contribution, cooperation and participation of each person.

Robert Sutcliffe stated that he needs an automated system, which is capable of creating person specific questions, with low administrative work. The market currently lacks automated solutions to solve the client's issues.

DEVELOPMENT

A great deal of thought processing and design strategy was implemented in the early stages of the project. This allowed us to comprehend the functionality of the system. The intention of a scaling system from 1 - 5 would provide users with a straight forward answering system. This, paired with our person specific questions, enables the response of more precise feedback.

The methodology chosen for the project was Agile Scrum. The project observed 5 sprints. The team created version 1 of the PeerEval.Me system over sprints 1-3. This system included group based questions accessible via unique codes sent through email, storing the questions and answers in the MySQL database.

The team initiated version 2 of the system over sprints 4-5. Version 2 required the implementation of person-specific questions, summary generator with PDF outputs, and a redesign of the database.

GitHub was utilized as the project team's version control and collaboration tool for developing the PeerEval.Me system.

The system is modelled after Symfony MVC framework. Symfony provides modular expansion and PHP libraries that will prolong the lifespan of PeerEval.Me system.

PeerEval.Me is hosted on an AWS Server located in Sydney, Australia on the AWS "free tier" Cloud hardware. It is running on a Linux distribution Ubuntu 16.04 LTS.

CONCLUSION

The system has achieved multiple requirements for the client. This includes: a visually appealing interface, privileged access levels, platform interoperability, security access through unique codes, and field validations.

PeerEval.Me is a work in progress, however the foundation has been set for future iterations to be implemented. The team have compiled a list of recommended features for the client to pursue with new project teams.

Presbyterian Support Central Wi-Fi Deployment Project

Alan Lyford
Student

Ian Hunter
Advisor

ABSTRACT

The Presbyterian Support Central (PSC) Wi-Fi Deployment Project is to deliver Wi-Fi services to 20 sites ranging from offices to hospitals over the next few financial years. As part of the first financial year (2016-17), PSC required a Pilot to be conducted to provide confidence that the selected Aerohive Wi-Fi solution would meet their immediate requirements and for the future.

Keywords: Wi-Fi, Aerohive, HiveManager, Deployment, Pilot

OVERVIEW

PSC is a Not for Profit organisation providing support and care to people in the lower North Island for over a 100 years. PSC has a need to provide technology at the bedside to collect data in an efficient manner and also looking at opportunities to leverage the Wi-Fi architecture to enable automated healthcare monitoring in the future.

Some of the known issues that PSC were facing was that some of their facilities are very large or have multiple levels. The added complexity of the materials used to create firecells to protect people from fire is known to either limit or in some cases destroy Radio Frequencies (RF) and even some entire PSC sites have no or limited mobile coverage.

PSC had chosen the Aerohive solution from a Request for Proposal (RFP) process, but wanted to validate that the solution would meet their requirements by conducting a Pilot at an office and a Rest Home or Hospital.

As this project is part of a large scope of work, PSC also wanted to confirm a rollout process that is repeatable to complete the rollout of Wi-Fi solution to the remaining sites. This enabled PSC to estimate the scale of the work left and the expected cost to complete all sites.

The scale of the work wasn't just limited to configuring a Wi-Fi management system (HiveManager) and putting up a couple of Access Points (AP) to test the solution. The work required covering tasks like the creation of cabling plans, the management of 3rd parties to install new cabling, manage & implement the change of IP addresses used on-site, the installation of new network equipment, guiding the business to make decisions on the services they could provide to residents, making configuration decisions to achieve the business requirements, testing the use case scenarios, testing the Wi-Fi solution as a whole, and finally providing user documentation to be used by different parties from corporate users and contractors to residents.

To provide confidence to PSC that the Aerohive Wi-Fi solution is right for them, I provided project management based on a basic Prince 2 methodology to manage the work required and followed the Waterfall model to implement the different stages required to validate the solution.

The Pilot has been completed with some recommendations being made like the need to re-test the Wi-Fi platform when application/firewall changes are implemented.

Four sites currently have Wi-Fi operational for corporate use with another four operational in the next two months. The business has agreed to provide residents with Wi-Fi & Phone services by utilizing the Wi-Fi architecture.

TITLE

Presbyterian Support Central - Financial Year 2016-17 Wi-Fi Deployment Project

AUTHOR

The project team consisted of one student completing his third-year project as part of his Bachelors Degree of Information Technology.

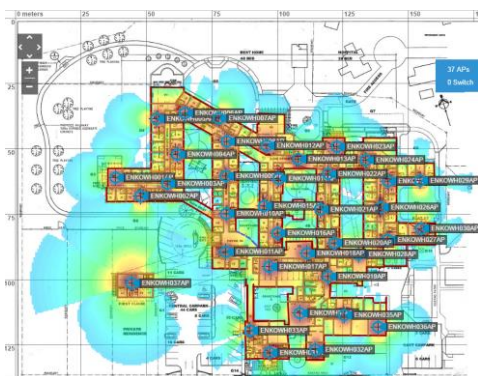


Fig 1 Kowhainui Heat Map for 5 GHz

Raise Your Game - Assess yourself; Build a plan for success

Development of an Android app for training athletes

Alex Stewart
Student

Francois Mindiel
Student

Vishan Ambardar
Student

Suzie Muirhead
Client

Chalinor Baliuag
Advisor

ABSTRACT

The Raise Your Game project was about developing an Android app, based on a Competency card sorting system. Competency card sorting has been done in the business world, but is relatively new in the sporting world. The app would also enable the client to gather statistical data from users of the app.

Keywords: Android, competency card, data gathering.

OVERVIEW

The client has developed an innovative new athlete and coach self-review process involving sorting cards. Each card describes a competency needed to be good at a sport. There is a specific set of cards for each sport. The purpose of the process is to identify the critical things that an athlete needs to work on and include in their development plan in order to be successful. The client has been using physical cards and planning worksheets in order to facilitate the process with athletes in person, but would like to reach new markets across the world with an app.

For the purpose of the project, the team of students, along with the client, focused on the development of an app for cricket. This would establish the layout and design for possible future development of apps for the other various sports the client is involved in.



Features

- The athlete sets up a profile for data gathering purposes.
- The athlete chooses what positions they play.
- The athlete sorts the cards according to their skill level in those competencies.
- A priority on the competencies is established by the athlete.
- The competencies are displayed and sorted in accordance with their priority.
- The athlete can share the information with others, such as a coach.

TITLE

**Raise Your Game - Assess yourself.
Build a plan for success**

AUTHORS

The project was completed by three students in their final year of study towards a Graduate Diploma / Bachelor degree in IT.

Raise Your Game V2.0 (Sport Planner)

By: Gurpreet Singh;

Prateek Sachdeva;

Gurjeet Singh Dhillon

Advisor: Terry Jeon

Client: Suzie Muirehead

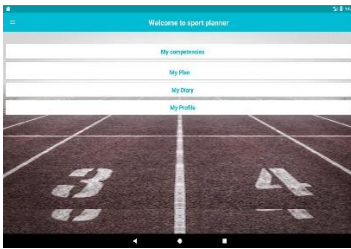


Fig. 1 Home screen

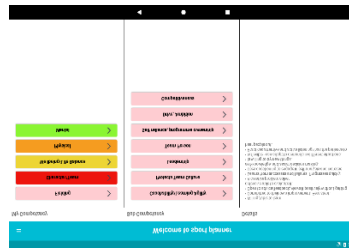


Fig 2. My Competency

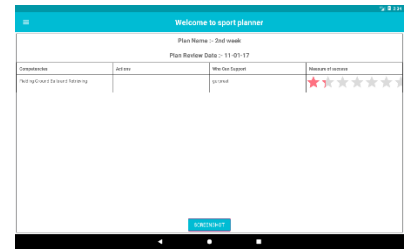


Fig 3. Tabular view of My Plan

INTRODUCTION

Sport Planner is a planning application that allows the athletes to record progress against each action, and set timeframes for review of the plan. The application will enable the players to keep a training diary, where they choose one or more actions to focus on each week and review their progress against this action. The players can also edit the created plans and training diaries.

The diary component fetches the plans created in the “My Plan” page. It enables the user to create a diary according to the selected plan.

Both plan and diary components can be seen in tabular view which is a summarising view and the user can also take screenshots of that tabular view to share the results with others.

DEVELOPMENT

Sport Planner is an Android application designed for tablet devices. This application has been designed on Android SDK using RAD (Rapid Application Development). The login and registration page has been created using firebase. The other main components of

this application are “My Competency” page, “My Plan” page, “My Profile” page, “Navigation Drawer” and “My Diary” page. All these components have been designed as different fragments. Each fragment has its separate layout design.

The user has to select a role at the time of registration and this role is the key component used in “My Competency” page and “My Plan” page. The list of competencies being displayed are in accordance with the selected role of the player.

CONCLUSION

Conclusively, we can say that this project is the automation of the performance planning process involved in a player's performance routine, where a player can choose competencies to work on according to his/her role in a particular game. These competencies can be fetched to a player's plan and personal diary to respectively record the actions required as well as performance progress. Hence, ensuring ease of recording and tracking performance unlike cumbersome manual planning on paper.

Raspberry Pi Secure Tunnel

James Sharp
Student

Patrick O'Connor
Student

Nhut Phan
Student

Manish Singh
Advisor

John Gould
Client

Mariki Farrell
Advisor

ABSTRACT

The Raspberry Pi Secure Tunnel project is designed to use a Raspberry Pi device connected to a remote OpenVPN server to provide a secure VPN tunnel when users are connected to free unsecured Wi-Fi. Should any man-in-the-middle attacks happen, they will be unsuccessful.

Keywords: Raspberry Pi, OpenVPN, VPN Tunnels, Raspbian, Secure Tunnel

OVERVIEW

Free unsecured Wi-Fi poses a big problem to many people throughout the world. Attackers can easily setup attacks such as man-in-the-middle attacks or a honeypot to obtain access to sensitive information because there is no protection in place. The Raspberry Pi Secure Tunnel project set out to resolve this problem through the use of a Raspberry Pi device and a VPN tunnel which will ensure that the connection is encrypted and any attacker who captures the packets travelling between the user's device and the router will not be able to see any information.

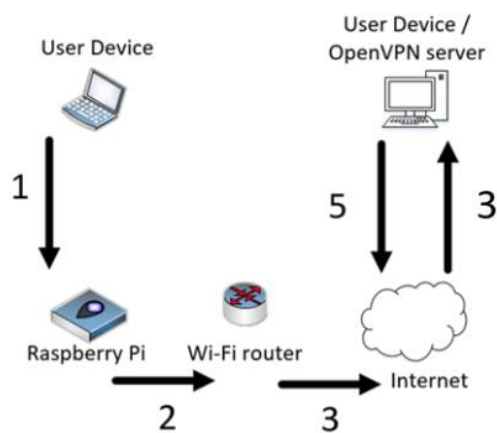


Figure 1 Raspberry Pi Secure Tunnel Topology

To achieve this the project team needed to obtain a Raspberry Pi device to be used as a layer of security between the host device and the unsecured Wi-Fi router.

Firstly, before attempting to connect to the free Wi-Fi, the user's device will need to connect to the Raspberry Pi using an Ethernet cable. Once they have done so, an SSH connection to the Raspberry Pi will need to be established using PuTTY.

Once the user's device has connected to the Raspberry Pi device, the Pi would then need to connect to the free Wi-Fi connection. To do this the user runs a script which will scan for any Wi-Fi connections in the area and then prompt the user to enter the name of the Wi-Fi connection that they want to connect to.

After the Raspberry Pi is connected to the free Wi-Fi connection, it would then need to connect to the OpenVPN server by running another script. This script prompts the user to select the encryption and authentication method for the VPN tunnel. After doing this, any traffic travelling from the user's device out to the Internet will be encrypted and will go through the Raspberry Pi and the VPN tunnel before reaching the free Wi-Fi router.

Throughout the duration of the project the team used the OpenUP methodology. Our project was to be carried out in iterations involving the use of prototypes and we required a methodology that was open to change throughout the project. The OpenUP methodology was best suited for this. OpenUP has four phases; Inception, Elaboration, Construction, and Transition, the end of each phase corresponding to a major milestone. Our project had three iterations and six milestones. During the first iteration we were setting up and configuring the Raspberry Pi, during the second iteration we were setting up and configuring the VPN tunnel, and during the third and final iteration we were performing security testing.

TITLE

Raspberry Pi Secure Tunnel

AUTHORS

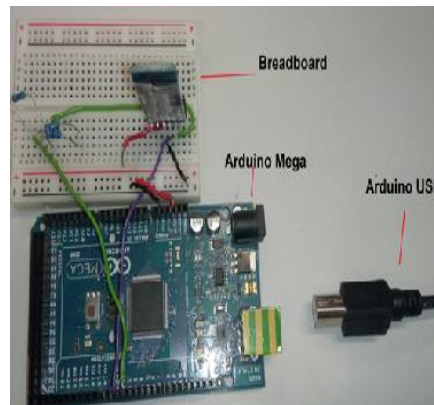
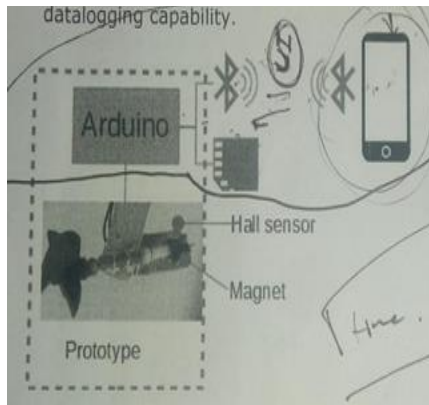
This project team consisted of two Information Security major students and one Networking Major student completing their final year at WelTec for the Bachelor of Information Technology degree.

Real-time Paddle Force and Boat Speed Measurement

By: Ashishkumar Thummar, Gurpreet Singh

Supervisor: John Gould

Client: Jacob de Feijter



Boat speed measurement circuit diagram

Boat speed measurement prototype

Real-time boat speed Application

INTRODUCTION

Dragon boat racing is a relatively new sport in the western world and there is very little published research that could assist coaches optimise the performance of their teams.

The Objective of this project is to integrate certain new functionalities to the existing prototype.

This project is expected boost the paddler's performance by training and racing smarter and paddling more efficiently.

DEVELOPMENT

In this project, we are adding new features such as wireless capability, Smartphone display, and other functionalities based on the client requirements to optimize the existing system.

In this project we built a boat speed measurement prototype using Hall Effect sensor, Arduino mega 2560, and Bluetooth module HC-05.

In the construction phase, we started with the Arduino UNO and bluefruit Bluetooth module but that didn't work well due to lack of resources available on bluefruit Bluetooth module. Therefore we have changed Bluetooth module to HC-05 and Arduino board to Arduino mega 2560. By using these devices we able to transmit successfully the Hall Effect sensor output over the Bluetooth.

To display the sensor output on Smartphone we built an Android Smartphone application which can display the sensor output in readable form.

In the construction phase of the smartphone application, we have decided to build that application in the Android platform but due to lack of experience and time we built our final smartphone application on the MIT app inventor which turned into a good decision and we've got the final product to deliver.

In this project we were able to meet client's requirement successfully which is to get sensor data on Smartphone via Bluetooth.

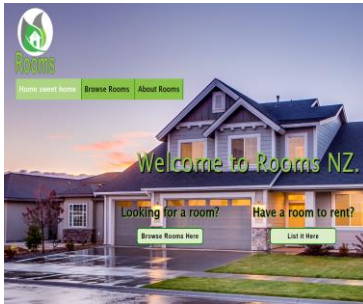
CONCLUSION

In conclusion, it is clear to see that the requirements in the proposal were met and the final product is working as per the client's expectation and our project advisor is also happy with the way we handled the project and meet the client's requirement.

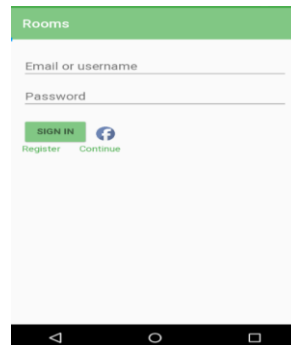
Rooms Project

By: Jason Epplett; Daniel Taplin; Tyler Fox; Jason Crack

Supervisor: Charlie Baliuag



Rooms Webpage (Homepage)



Rooms Application (Login)



Rooms Logo

INTRODUCTION

The Rooms project is about helping solve the Wellington housing crisis and exploiting a niche in the market place. We aim to do this by being one of the first applications to enable users to list a single room via the Rooms app instead of whole houses that need to be filled up.

DEVELOPMENT

Before we started developing our idea, the Rooms group decided to break down the development into stages. This was done by having a sprint master; this person was in charge of their sprint.

First sprint was the getting-started-phase where we would have to come up with a bid to pitch our idea. Once the bid got accepted we started to work on a proposal with a more in-depth look into what is involved with development.

The second sprint was our design phase. This is where all of the diagrams e.g. Activity diagrams, system sequence, ERD, database diagrams and any other design diagrams that were needed, were implemented.

Sprint three was front-end design phase. This is where all the front-end web and front-end app were developed. This was done via the skeleton that was designed during sprint two. The skeleton was a mock design of what the app could look like.

Sprints four and five were the development phase. This is where the back-end of development as well as any database design were started.

Sprint six was the closing phase. This is where all the finishing documentation and any finishing touches to the app or website were created.

The closing phase was the finalization of the project where only small adjustments took place, e.g touch-up of code, adding comments to code, alignment of front end, etc.

CONCLUSION

The Rooms project group succeeded in creating an application and website with a working login database as well as users being able to upload their listings and browse other users' listings. The Rooms app also has a message service implemented inside of the app, allowing users to communicate via the app.

We have had a lot of ups and downs as a group with Tyler Fox being away and sick most of the time and Jason Epplett and Daniel Taplin not living in the Wellington area. It made communication with the group hard from time to time. It was hard for the group when a task was not getting completed and not having any communication as to why they were not completed. It was frustrating to the group.

These issues were overcome by reallocation of work to a different group member. If a task did not get done by the end of the sprint that task was then allocated to a group member during the next meeting in order to keep our promise to the proposal.

Sadhana Card

(Mobile Application for Monitoring Work Progress)

Harmandeep Dhaliwal
Student

Rajandeep Brar
Student

Aniket Kudtarkar
Student

Sandeep Vankadari
Client Representative

Reeza Moosaei
Advisor

ABSTRACT

Sadhana card mobile application plays a vital role in the ISKCON community. It will help ISKCON users to capture the data about the performance of their users such as chanting, reading, diet and services, as well as maintaining and tracking all the records, so that all the users will keep their own records on their own mobile device and can check their daily, weekly, monthly or yearly progress report.

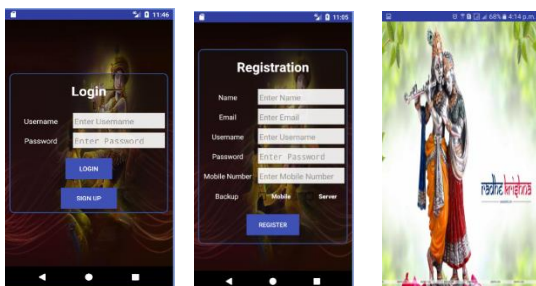
Keywords: Backup option, Graph, Sharing, Date Picker, Enable/Disable user, Activity Log.

OVERVIEW

Today, the mobile phone has become the mainstay device in society and they come with a lot of technological innovation. Android apps are easily accessed by the users and these apps are very easy to use.

Sadhana card will help the ISKCON community to capture the data about the performance of their members, such as chanting, reading, diet and services which are done by the Preachers. The main advantage of this application is Preachers can check their progress report daily, weekly, monthly and yearly. Before developing this application, Preachers (Users) didn't have any electronic records and the higher authorities found issues every month to track the Preachers' records. After launching the application "Sadhana Card" Preachers can record their data electronically.

This is the first version of "Sadhana Card". The login page for admin and user is the same. An IOS version can also be developed in future.



We used the open up methodology which deals with the essential parts of the project, rather than the purpose of the project,

maintainability or mission critical. The OpenUP process has four phases for the development of the project.

OpenUP: This is also the agile process working as an adaptive phase in which we can know all the requirements of the client. OpenUP preserves an important feature of rational unified process or unified process in which iterative development, user cases and scenarios during development, risk management and architecture-centric approach are included. In OpenUP, numbers of optional parts of relational unified processes have been excluded and elements have been merged.

Four phase of methodology:

1. Inception
2. Elaboration
3. Construction
4. Transition

TITLE

Sadhana Card

AUTHORS

The project team consists of three members pursuing the Graduate Diploma in Information Technology (Level 7).

Software Defined Networking(SDN) Project

Wilfred Zac Miller
Student

Andrew Kim
Student

Laydan Mortensen
Student

Sandeep Vankadari
Advisor

ABSTRACT

The Software Defined Networking project was introduced as a research study and for our project team to deliver a teaching tool for third year students at WelTec, to get the introduction and understanding of how SDN and its architecture works differently from CISCO in the business world.

Keywords: Software Defined Networking, research, teaching tools, SDN, architecture, Cisco.

OVERVIEW

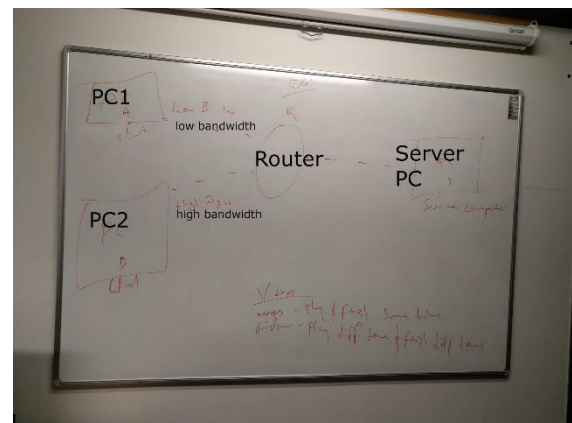
Software Defined Networking (SDN) for short, is one of the newest technologies out there for students with two or three years of High School or just out of High School or College.

Software Defined Networking (SDN) is an approach to computer networking that allows network administrators to manage network services through abstraction of lower-level functionality. SDN is meant to address the fact that the static architecture of traditional networks doesn't support the dynamic, scalable computing and storage needs of more modern computing environments such as data centres. So basically, SDN is OpenFlow, Standard Southbound API, Centralisation of control plane and separation of control and data plane.

Our project team had to research and to develop a short introductory course covering the fundamentals and architectural concepts of Software Defined Networking (SDN) for third year networking students. The picture below shows our process to develop the first working lab.

We have also learnt that Cisco is going to start adding Software Defined Networking

(SDN) courses into the advanced networking courses in the near future.



Our project group sees this as a good opportunity because if Cisco, one of the largest network infrastructure companies, is viewing software defined networks as something that needs to be taught, it confirms to us that there is a demand for people versed in SDN.

TITLE

Software Defined Networking

AUTHORS

The team for this project consisted of three undergraduate students currently studying the Bachelor of Information Technology Degree at Wellington Institute of Technology.

Secure Wi-Fi Banking and E-mail Project

Jeeves Perera
Student

Manish Singh
Technical Adviser

John Gould
Client

ABSTRACT

The primary objective of the secure Wi-Fi banking and email project is to get the application layer functionality working so a non-technical person is able to initiate a remote desktop session from anywhere in the world, connect to their home network and conduct bank transactions or view their emails.

Keywords: Wi-Fi Access Point (WAP), Microsoft Remote Desktop Protocol (MS RDP), Raspberry Pi, Application layer, OSI (Open System Interconnectivity), man-in-the-middle (MitM)

OVERVIEW

The objective of the project is to implement a secure Remote Desktop Connection (RDP) where a naïve, non-technical person is able to initiate a secure remote connection from anywhere in the world using a laptop, tablet or smart-phone, connect to their home network and conduct banking transactions and view email in an environment where man-in-the-middle (MitM) attacks are common.



Fig 1: OSI model Application layer functionality at layer 7

The proposed solution will be useful if a person is travelling for either business or pleasure where there is a need for the traveler to log into their home or work network in New Zealand for some reason. For example, the user is currently travelling through an airport in the United States (US) and wants to view their bank account in New Zealand. The user will first log into their

personal laptop using their credentials; this is their user ID and pass-word. Then they will activate Wi-Fi on their host laptop and connect to the nearest Wi-Fi Access Point (WAP) within the airport. After this, the user will execute a remote desktop session on their host laptop to either connect to the home or work network in New Zealand. After the remote session is established they will use their host laptop to manipulate the keyboard and mouse on their remote desktop to conduct personal business such as banking transactions, peruse emails, files and folders.

The test oracle for this project is Microsoft Remote Desktop Protocol (MS RDP).

TITLE

Secure Wi-Fi Banking and E-mail Project

AUTHORS

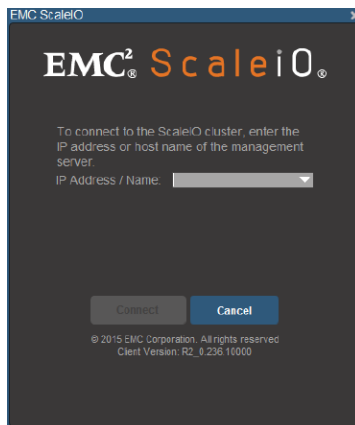
The project team consisted of one student who was completing his final year capstone project as part of the Bachelors Degree of Information Technology.

Software-Defined Storage 1

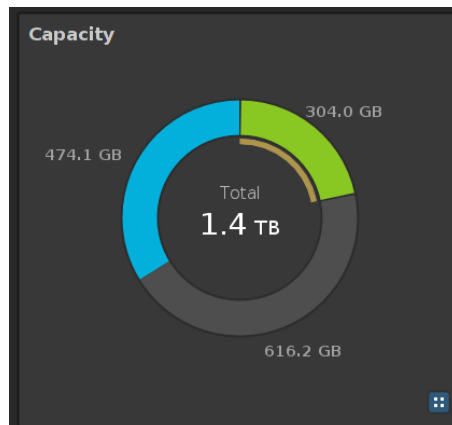
By: Jonathon Brown; Xianghua Yang

Supervisor: Jeff Echano

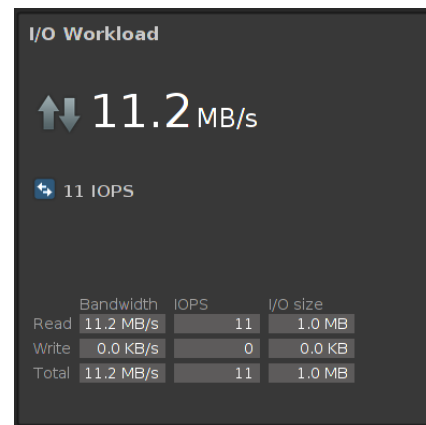
Client: Paul Bryant



EMC ScaleIO Login pane



Storage Pool from all devices



Throughput Speed with a 100mb/s network

INTRODUCTION

There is an increasing demand for end users to have high level availability and efficiency when accessing files on a network. This trend is currently growing and will be exponentially continuing onwards into the future. The need to store large files such as media or video and have these highly available for users is generating a substantial demand for storage solutions such as Software-Defined Storage.

Our client has identified an opportunity to demonstrate the potential of implementing a Software-Defined Storage system as a backend storage mechanism for students and staff within the B labs IT network. Currently, students are using the Z: shared drive for local storage purposes – however, the current system can be viewed as inefficient in terms of its accessibility. At this point, data is saved on a per-computer basis and that local storage is accessible only from the system it was saved on. If a user wanted to access those same files they would need to locate the computer number and then copy those files across the network. This issue becomes prevalent with the use of virtual machines; when users have to switch computers they can have issues relocating the virtual machines and in some cases will have to reinstall the virtual machine as a whole.

DEVELOPMENT

Our solution comes in the form of a Software-Defined Storage technology called EMC ScaleIO. ScaleIO is a platform for simplifying and automating management of traditional storage hardware. ScaleIO provides the capability to create a server-based storage area network (SAN) from local application storage, converting direct-attached storage devices into block storage. The ability to create storage pools from direct attached storage without any additional or specialised hardware is causing Software-Defined Solutions such

as ScaleIO to reshape the storage industry with market acceptance growing at an accelerated rate.

The Project team operated under the use of the iterative design model, with the knowledge of the majority of the requirements at the start of the project. This methodology had phases of design, implementation, testing, and validation. During the project's lifecycle we came across a few situations where the requirements were slightly altered at the request of the advisor. Thankfully, this methodology also included support for changing requirements as areas of functionality are presented to the client.

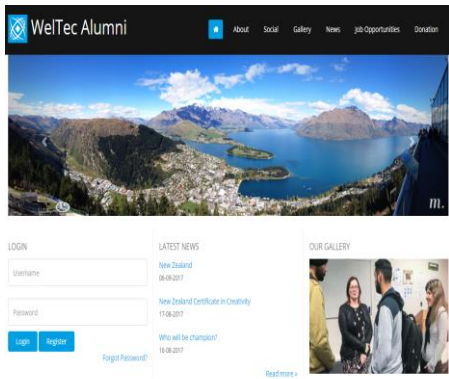
CONCLUSION

We believe moving toward a Software-Defined storage infrastructure has a vast number of benefits and provides numerous improved areas of functionality for any organization wishing to do so. Our Software-Defined Storage solution provides the following benefits:

- ScaleIO is hugely elastic, meaning adding more capacity to the storage results in linear scaling with performing going up.
- Highly available with automated and un-intrusive rebuild and rebalance that do not affect application performance.
- A centralised management interface allowing system administrators to manage a much wider system of data as well as achieving better resource utilisation.

Student Alumni System

By: Alwyn Jose; Jostin Joy; Philip Saji; Sam Sunny - Supervisor: Reza Moosaei Client: Ian Hunter



Welcome to WelTec Alumni

Kia ora, Tāwhiri, Māori e hākei, Kia Ora, Bula vinaka, Fakaalofa atu, Taloha, Konichiwa, Ni Hao

Welcome to Wellington Institute of Technology Te Whare Wānanga o Te Awakairangi

At WelTec our job is to ensure that the skills we teach are relevant for your success, in the future as well as today. We deliver practical, relevant qualifications designed to enhance your career and employment options.

You will find that we are future focused. Our teaching staff are specialists and researchers in their fields, and we are investing in exciting new technology to ensure that we remain at the leading edge of training and learning in New Zealand.

Our passion for the future is based on solid foundations. WelTec has had an important place within the wider Wellington region for over 100 years. We offer a comprehensive range of education to almost 11,000 students each year.

Our teaching is enhanced by the positive industry relationships we develop and enjoy. We work closely with employers so that we, and they, are confident that our graduates have the skills they need to succeed in the workplace.

News

- 06 New Zealand**
New Zealand is an island country in the southwestern Pacific Ocean. The...
Sep 2017
- 17 New Zealand Certificate in Creativity**
Start your creative journey. Get a taste of a wide range of...
Aug 2017
- 16 Who will be champion?**
Who will be champion? St Pat's (Silverstream) take on Wellington College. Stream...
Aug 2017

[WelTec Alumni Homepage](#) [WelTec Alumni About Page](#) [WelTec Alumni News Page](#)

INTRODUCTION

WelTec Alumni is an online web based alumni system developed and implemented by four IT students of WelTec as part of their final year project. The main aim of this system is to develop and maintain a good relationship between the previous students and the institute, give updates of events and also help them to apply for jobs.

The main features of this alumni system are:

1. Student register option
2. News page
3. Job opportunities page
4. Donations page
5. Administrator log in option, where the admin can edit gallery, add news, jobs and manage student accounts.

DEVELOPMENT

An old student alumni system was already developed by the previous IT students of WelTec. But this system lacks many important features. The project team were assigned to add additional features and then implement the system to the SOIT website. We had an extensive testing of the system and found that lot of essential changes were required. The system was unstable and the database was not working.

The implementation team followed the PHP CodeIgniter frame work, back end using MySQL and database created using phpMyAdmin. The team implemented the system with the help of WAMP server.

The methodology we used for this project is Scrum (Agile) methodology. This was really helpful for us as this project involved a blend of both development and testing at different stages.

The Project Team modified the code and added more features and functions to the system such as:

1. Admin forgot/change password, control user accounts
2. Students can apply for job in a single click
3. Added security in all forms using captcha
4. Made website responsive in all browsers
5. Registered users as well as visitors can view the jobs.

The Alumni system was successfully developed by the team and is stable and secure as per the client requirement. The old version of the SOIT server was not supporting the website. The new system got tested and is ready to go live from any of the new servers. It can also be installed in a Cloud server.

CONCLUSION

The final product resulted in a professional, visually appealing, efficient and secure website, responsive in all web browsers. The coordination of the team and hard work contributed to the success of this project. We got full support from our client Ian Hunter and advisor Mr. Reza Moosei. We acquired knowledge on CodeIgniter, SQL, software testing and security. We also got the experience in working in a challenging environment with very little time which will be helpful for us in our future careers.

Student Time Planner v3.0 (STP) Helps to Manage Time and Task

Charls Kolamkuzhiyil
Student

Amal Baby
Student

Arshadip Kaur
Student

Lata Joshi
Student

Terry Jeon
Advisor

Robert Sutcliffe
Client

ABSTRACT

Time management plays an essential role in a student's academic life. Student Time Planner system helps students in the timely management of their academic assignments and tasks i.e. reading, revision, and the preparation of tests and exams. Students are also involved in other activities along with their academic work. This Project helps students in time-based management of their academic and other activities by providing additional functionality in STP system to plan, review and manage their work on a weekly basis.

Keywords:

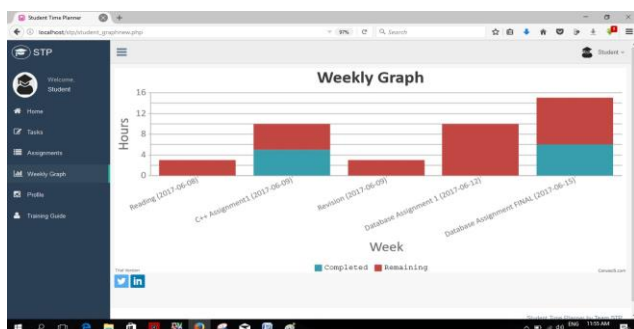
Weekly Graph, Data Encryption, User Identification Method, Training Guides, Social Media sharing.

OVERVIEW

The Student Time Planner is a website which helps the students to manage their studies, assignments, and exams very easily in an effective way. The objective of Student Time Planner (STP) V3.0 project is to integrate new functionalities into the existing web-based Student Time Planner system of Weltec. The main advantage of this project is the graphical representation of students' work progress. The weekly graph will show the student work progress based on the hours they spent for different modules like reading, revision, and assignments. The proposed system weekly graph will show all academic tasks of a student. The students can share their achievements on social media like LinkedIn and Twitter.

Our version of Student Time Planner has included an encryption method to secure all students' personal information i.e. email and password, recorded in the STP database. Inclusion of a user identification method will ensure only human interaction with the system and prevent the access of automated/robot generated profiles. The project

Fig 1 STP Weekly graph



has also added a training guide/help file for admin, staff and students to simplify the use of this STP.

In our project, we used Agile – OpenUP because of its advantages. OpenUP methodology deals with the essential parts of the project, rather than the purpose of the project, maintainability or mission critical. OpenUP is a minimal, complete and extensible process. OpenUP has a delivery process for iterative development throughout four phases. The iteration template patterns are applied as many times as needed, depending on how much iteration the team decide to run in each phase. Projects with different needs may instantiate iteration template patterns differently. These four phases are:

Inception – Understand what to build and identify key system functionality.

Elaboration – Get a more detailed understanding of the requirements. Design, implement, validate, and mitigate essential risks.

Construction – Iteratively develop a complete product.

Transition – Test to validate that user expectations are met.

TITLE

Student Time Planner V3.0

AUTHORS

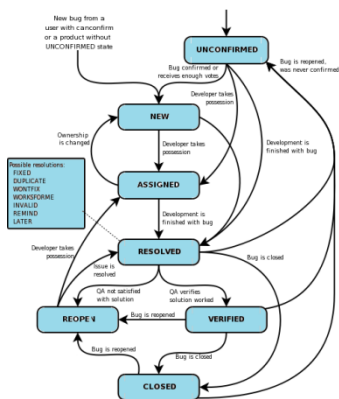
The project team includes four members who are pursuing their Graduate Diploma in Information Technology, Level 7.

Test Environment Build

By: Deepak Dhiman and Abhay Kumar

Advisor: Nick Tullock

Client: John Gould



Lifecycle of a bug In Bugzilla

ID	Product	Component	Assigned To	Status	Severity	Summary
1	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
2	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
3	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
4	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
5	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
6	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
7	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
8	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
9	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
10	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
11	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
12	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
13	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
14	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
15	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
16	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
17	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
18	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
19	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
20	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
21	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
22	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
23	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
24	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
25	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
26	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
27	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
28	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
29	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries
30	Sample Queries	Sample Queries	Tested	open	normal	Sample Queries

Showing Projects generated and Test Cases

INTRODUCTION

The Test Environment Build Project was based on working on the Open Source Bug tracking tool which gives developers a platform to track the outstanding problems with their products. The Virtual Bugzilla was chosen by our team which is free to use and to track the Defects associated with the Different products. The Virtual Bugzilla can also be used as a Test Management tools and other Test Case management tools like Quality Center and Testlink can also be attached to it. This Test Management Tool allows users to interact with their clients and employees which gives clear information about what is going on throughout the data management chain.

The Test Cases were implemented in the Virtual Bugzilla and found bugs which were later studied by our team. There were so many projects created in the Virtual Bugzilla and then bugs were created in these projects. The reason why this tool was good is because there are lots of features that make it unique and beneficial for the users. Virtual Bugzilla have already inbuilt Linux Operating System, Apache Server, and MySQL Database and it can also be easily installed and configured in the Virtual Machine. The Deskzilla is used for setting up the connection for proper functioning of Virtual Bugzilla server, which is easily available on their website.

The installation of Virtual Bugzilla is very easy and takes few minutes for ready to use. The projects created in the Virtual Bugzilla can be easily exported to the PDF format. It doesn't require much maintenance and can be easily maintained.

DEVELOPMENT

During the Development phase, our project team did Three Phases:

1. Installation Phase
2. Development Phase
3. Research Phase.

In the Installation Phase, the VM, Virtual Bugzilla, and Deskzilla were installed and configured accordingly. While during the Development Phase, we had created Multiple Projects in the Virtual Bugzilla like Apache Project, Linuxbase Project, General Website Bugs, etcetera. Then we had Implemented Test Cases in the Virtual Bugzilla. Whereas, around 100 bugs were generated by our Project Team in these Projects. Then, Team had generated reports for these bugs and have studied it too. Ultimately, we had made a User Manual and Training documentation for "Test Environment Build" Project.

CONCLUSION

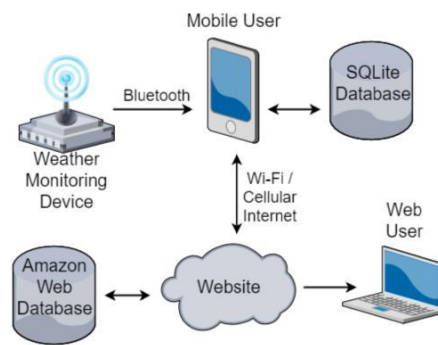
The final conclusion of the Test Environment Build Project includes using the Virtual Bugzilla as an Bug Tracking System for implementation of the Test Cases for the Bugs. There were multiple projects which had been created by our Project in the Virtual Bugzilla. Around 100 test cases related to Multiple Projects were implemented successfully by our Project team. Later on, the reports for these bugs were successfully generated in the PDF format. Ultimately, the Project Team had studied the generated bugs and provided User Manual and training for the Project.

Tramper Weather Monitor Project

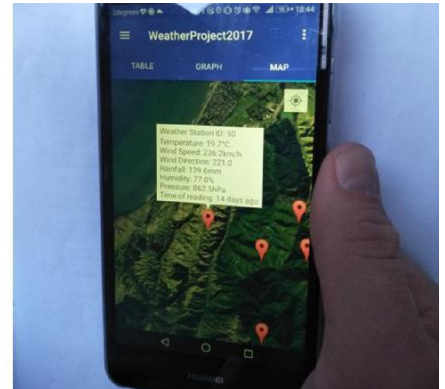
By: Darwin Nunez; Jesse Bricknell; Liam Crawford; Luke Hamer; Russell DeRitter
Supervisor: Glenda Shaw Client: Asa Cox (Intela AI)



Project team with weather monitoring hardware.



Architecture Diagram of entire system.



Application in use displaying example weather stations on a map

INTRODUCTION

The purpose of this project is to solve the problem that exists throughout New Zealand where there are areas with little or inaccurate weather data being collected due to their remote locations and lack of network infrastructure. Many of these locations, such as hiking trails, see significant foot traffic whose safety would benefit from precise weather information. Accurate and recent localised weather information would be invaluable to rescue and conservation workers in remote locations.

Our solution to this problem is a low-cost crowd data gathering system. We recognise a niche in the market for a weather monitoring system which collects weather data in locations outside of cellular coverage and allows passersby to gather and read the data using a mobile device. Once in cellular coverage the weather data can be uploaded to the web. This weather data will be stored in a database allowing for viewing through a website.

DEVELOPMENT

Due to the project's speculative nature the project team harnessed a methodology combining PRINCE2 and SCRUM to maximise project structure while keeping flexibility for the changes that would inevitably be required. The developed system consists of a weather monitoring device, a mobile application, a website and a database.

The weather monitoring device was developed by wiring an Arduino with multiple sensors for gathering weather data. A Bluetooth low energy module was connected in order to allow for

transmitting of weather data in remote locations to users with the application.

The mobile application is produced for Android devices and allows the user to gather weather data from the offline weather stations. This data can then be viewed as a table, graph or as locations on a map. Once the device is connected to the internet the recent data is uploaded and saved to the database.

The database is hosted by Amazon Web Services in the Cloud, allowing for scalability and 100% uptime. Weather data gathered by mobile devices is uploaded and stored by this database.

The website allows the user to view any weather data within the database through multiple screens. Similar to the application the website allows for viewing of weather data in the form of a table, graph or on a map.

CONCLUSION

For the project we have produced a prototype which has the functionality as described above which achieves our requirements for the project. Testing and use of the prototype has proven that it is a viable option for further development for manufacturing and sale.

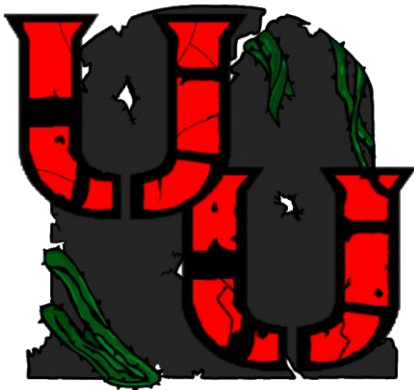
By transmitting weather station data via Bluetooth to an offline phone and then uploading it to the web based database at a later point, we are able to gather data previously unattainable. We hope that work will continue on the project to develop it to the point where it can be manufactured for sale.

Ultimate Undead

By: **Jeremy Cains and Justin Croudin**

Supervisor: **Chalinor Baliuag**

Client: **Client-less project**



Ultimate Undead Logo



Ultimate Undead in-game screenshot



Art used in menus

INTRODUCTION

The aim of our project was to create a multiplayer 2D platform arena game, similar to titles that are very popular on the Steam store and Google Play Store. We wish to emulate the best things about these games to create our own spin.

The game is being developed using the Java language and Eclipse as our IDE.

DEVELOPMENT

Our project was developed by a team of two. We are both undertaking a Bachelor of IT, majoring in Software Engineering. Both Justin and I have a great passion for games and game development and we wanted to create a game like the ones we play every day.

We employed a V-model methodology at the beginning of the project and did our best to follow its practices.

Our game was developed using the Java language with Eclipse as our IDE. We chose to do this because we believed that Java was our strength when it came to programming, and we wanted to use a language and a development tool that we were familiar with.

When planning our project we started with basic hand-drawn diagrams and ideas. This was the best method for us to get a bigger picture of what we wanted to achieve. We then moved on to using System Analysis and Design techniques to develop UML diagrams.

A two person team was great for this task because we both had similar ideas about what we wanted to be in the game, and also we had a similar mind-set when trying to fix problems that came up or when thinking about what to do next.

During later development we didn't make as much use of the V-model methodology as I would have liked to; however, I still believe we kept it in mind when proceeding and trying to get the last-minute implementation finished. We are proud of what we have achieved with the development of this project.

CONCLUSION

The final conclusion on the outcome of the project.

Both Justin and I are proud of the outcome of our project. Although we missed out on some of our requirements, we still managed to come up with a working local multiplayer game that is very fun to play with your friends.

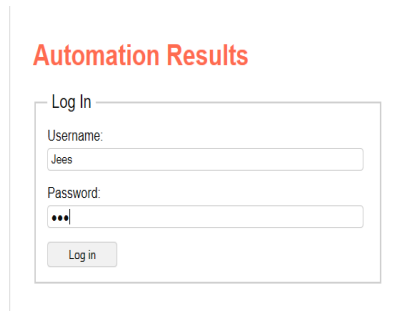
After the conclusion of this project, we plan to further the development of the game, by moving on to using the Unity game engine, and to achieve our goals of producing a working online multiplayer game.

Web and Mobile Automation Framework (WAMAF)

By: **Jees Zacharia; Nivya Varghese; Ashmy David; Catherine Aloysius Rozario**

Advisor: **Clement Sudhakar**

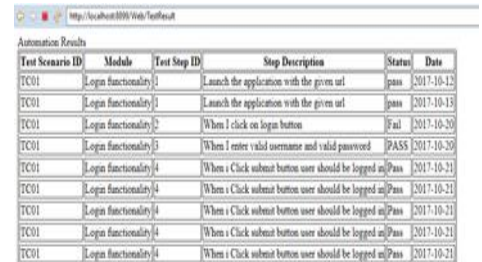
Self-Client: **WAMAF**



Login page of web interface
page of web interface



Home page of web
interface



Test Scenario ID	Module	Test Step ID	Step Description	Status	Date
TC01	Login functionality	1	Launch the application with the given url	pass	2017-10-12
TC01	Login functionality	1	Launch the application with the given url	pass	2017-10-13
TC01	Login functionality	2	When I click on login button	Fail	2017-10-20
TC01	Login functionality	3	When I enter valid username and valid password	PASS	2017-10-20
TC01	Login functionality	4	When I Click submit button user should be logged in	Pass	2017-10-21
TC01	Login functionality	4	When I Click submit button user should be logged in	Pass	2017-10-21
TC01	Login functionality	4	When I Click submit button user should be logged in	Pass	2017-10-21
TC01	Login functionality	4	When I Click submit button user should be logged in	Pass	2017-10-21
TC01	Login functionality	4	When I Click submit button user should be logged in	Pass	2017-10-21

Test results

INTRODUCTION

Automation frameworks provide the facility for the developer and tester to continuously test a web facility for forthcoming errors before it affects the end user. With growing web for both desktops and mobile interfaces and highly dynamic and secure applications running at the background, web automation testing becomes an essential component for Web and Mobile application design and development.

In this project, we are targeting for an automation framework with test results updated on a web interface which can be used by developers and portal managers to estimate the detail of throughput obtained by the website using web automation techniques. One of the critical techniques that can save developers' and UI testers' time is to develop a platform to perform auto conversion of web automation script to a mobile script. The future objective is to develop a single code framework for web and mobile test automation.

DEVELOPMENT

We followed agile scrum methodology, in which we had 8 sprints with 4 phases.

First phase was to create the project proposal; it was done successfully with the help of resources available.

Second phase is website automation, which consists of 2 sprints; one to identity the test case manually and run it and then create framework to automate them.

Third phase consists of 2 sprints, one to create the framework and then to create the test case and automate it.

Fourth phase also consists of 2 sprints, one to do the front end design and other for back end.

Thus the project was completely developed within the timeframe as said in Gantt chart.

CONCLUSION

Our project's aim was to create a framework for web and mobile automation and to create a web interface to show the result and efficiency of the project. This web interface is designed for the internal network only.

Wellington High School Systems Migration

Jonathan Churton
Student

Thomas Fuller
Student

Timothy Nelson
Student

Paul Bryant
Advisor

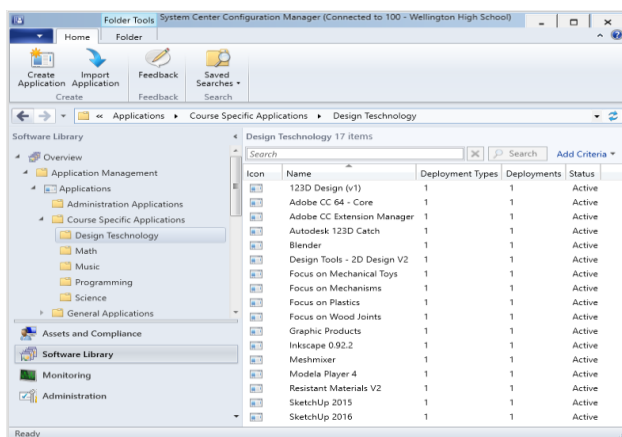
ABSTRACT

Microsoft Systems Centre Configuration Manager (SCCM) is a systems management software solution designed to manage large groups of computers. The system is designed to remotely deploy copies of a Windows system to remote clients, Install required and optional applications assigned by an administrator, and manage core features and settings of client machines. Windows 10 is the latest version of Microsoft's flagship operating system.

Keywords: Application management, Operating system deployment, Windows 10, SCCM

OVERVIEW

Information Communication Technology is an important tool used by all education institutes in today's modern society. Systems that are outdated and buggy affect the learning environment and limit the potential outcomes that can be gained by using computer technology. Wellington High School (WHS) have been using Windows 7 and Novell ZENWorks as their operating system and application management solution for end-users. These solutions are buggy, outdated and require lots of maintenance to keep working.



TJT-Tech were assigned the role of migrating Wellington High School from Windows 7 and Novell ZENWorks to Windows 10 and Systems Centre Configuration Manager (SCCM). The new solutions are fast, flexible, secure and easy to use. Windows 10 is the latest version of Microsoft's flagship operating system and the

latest version of SCCM is the recommended solution to managing deployments of Windows 10 and applications used by Wellington High School.



The project required TJT-Tech to analyse the existing systems and solutions, business use cases and future requirements. Detailed designs were created to allow SCCM to be installed alongside the existing school servers, infrastructure and network without downtime or interference to stakeholders.

The TJT-Tech team used a waterfall methodology throughout the execution of the project. The methodology was appropriate as project requirements were clear and well stated from the start. The team migrated and tested all 86 applications, 9 machines used in production, and 6 stakeholders from Wellington High School. Positive feedback was received from all stakeholders.

TITLE

Wellington High School Systems Migration

AUTHORS

The project team consisted of three WelTec students completing the end of degree project for their Bachelor of Information Technology.

Yet Another Low Interaction Honeypot (YALIH)

By: Sukhdeep Kaur;

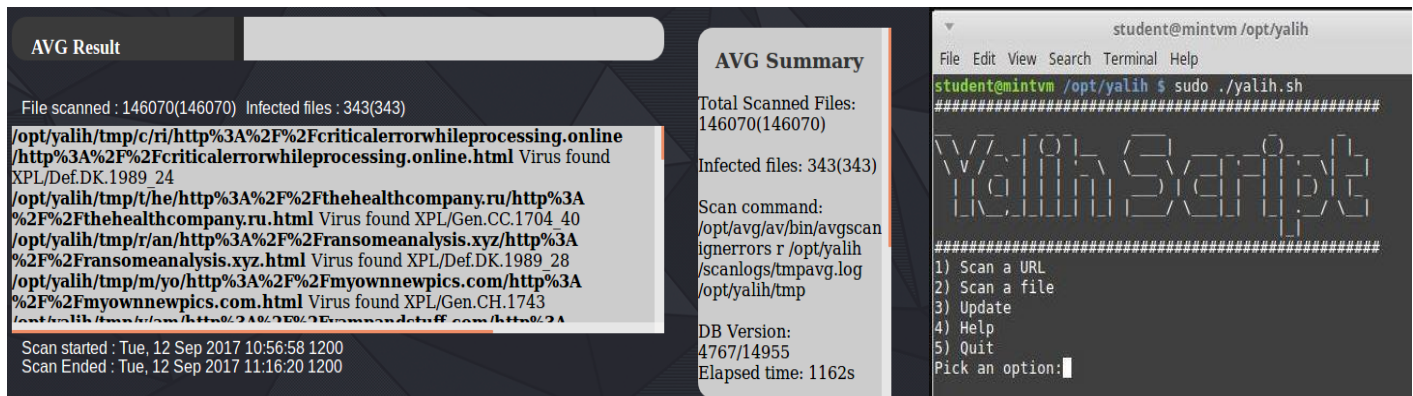
Sunaina Joshi;

Prabhjot Singh;

Vikas Dadwa

Supervisor: Drew Duncan

Client: Masood Mansoori



Reporting Module

Reliability Module

INTRODUCTION

Project YALIH is all about client Honeypot system which is used for the detection of malicious websites. YALIH was developed by Masood Mansoori at Victoria University of Wellington.

Honeypots considered to be the security devices that is designed to lure the attacker's malicious activities to itself. Low interaction client honeypots are the active systems which is used to simulate clients instead of using real system to interact with servers. Client honeypots systems crawl the network, interact with servers and classify the servers with respect to their malicious nature.

YALIH is an already built software. Project team added two features to it. One is a reliability module and the other a reporting module.

In the reporting module, the project team generated three reports of three log files and provided the summaries on one interface. Team also added an about page to it which provided information about honeypots.

In the reliability module, project team improved honeypot by stopping it being crashed in between while detecting so many files. Team provided the freedom for admin to choose different options while running honeypot

DEVELOPMENT

In the reporting module, the existing YALIH generates three log files AVG-Report.log, Clam-report, and YARA-report. User need to open all these files to get information but after the

improvement there is no need to open all these files because user will get all the data on webpage. This interface provides all the information of these log files and give the summary of it. User will get information of the common malicious websites found among the three files.

In the reliability module of the project, user can easily access various options by choosing from menu described in the screenshots. By choosing the first option, user can scan a single URL. In the second option user can insert a file name which includes number of malicious website names. This option needs some further improvements because the system is crashing during the scanning of large number of files. The third option is updating the antivirus which are installed in the honeypot. The user will get help related to various command running in honeypot by choosing the fourth option. The last option will be used to exit from the system.

CONCLUSION

Improvements in YALIH makes system more reliable, user-friendly and secure. Admin can get the knowledge of the summaries of the three log files generated while scanning of malicious websites such as directories, number of scanned files, infected files and so on. Admin also have the freedom to know about the current status of honeypot whether it is running or not.