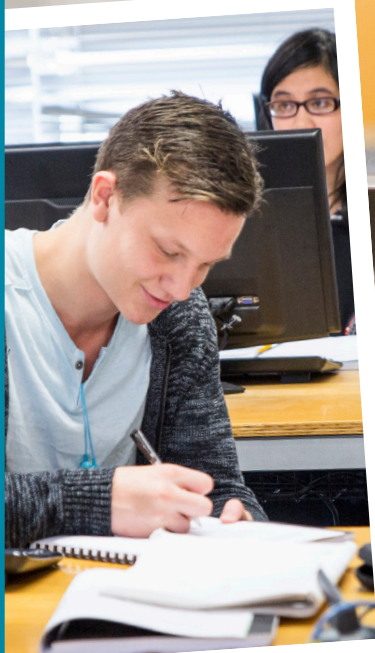




Information Technology

2016 Projects



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WeITec

Te Whare Wānanga o te Awakairangi



Information Technology (IT)

Introduction

Welcome to the compilation of Final Project synopses. These projects are undertaken by Graduate Diploma in Information Technology and Graduate Diploma in Information Assurance and Security students and students in their final year of the Bachelor of Information Technology (BIT), from the School of Business and 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 School of Business and 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.
- Graduate Diploma in Information Assurance and Security (Level 7) students 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.

2016 IT Projects

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9	E-commerce Web Portal - Phase 1 Group 2 (Daily Deal) Trimester Two 2016	<i>Arun Adhikari; Pratik Patil; Mohammad Mustakim Ur Rahman.</i>	Reza Moosa	17
10	En Route Social Travel Application Trimester Two 2016	<i>Clement Campagna; Fabio Locatelli; John Walraven.</i>	Chaliner Baliuag	18
11	Finder Android Application (for lost mobile phones) Trimester Two 2016	<i>Sanju Daniel; Jeffin Jose; Aloshy K Thomas; Nivn Papapchan.</i>	Reza Moosa	19
12	‘FlightAdvice’ Wireless Weather Station Project Trimester Two 2016	<i>Nilu Herath.</i>	John Gould	20
13	Group Discussion Support System Trimester Two 2016	<i>Arjun Thakali; Shushil Timsina.</i>	Ian Hunter	21
14	Help Desk Simulator 1 Trimester Two 2016	<i>Shakthidharshan Prabhakaran; Cholatid Boonned; Sirpong Gaewmaneechot; Tejeswar Reddy.</i>	Leonie Trower	22

	Project Titles – continued (2)	Students	Advisor	
15	Help Desk Simulator 2 Trimester Two 2016	<i>Ashish Jariwal; Shubham Chauhan; Ashwani Sharma.</i>	Ian Hunter	23
16	Holographic Kiosk Trimester Two 2016	<i>Pugazhanthi Manivel; Gurwinder Singh Handa.</i>	Waqar Khan	24
17	Network Course Study Development Trimester Two 2016	<i>Dmitrii Ageev; Matthew Dickie; Lawrence Myuargas; Robel Teklay.</i>	Drew Duncan	25
18	One Real Estate Trimester Two 2016	<i>Daljinder Kaur; Sonia Guleria; Kawalpreet Kaur; Pallak Kashyap.</i>	Mariki Farrell	26
19	Petopia Trimester Two 2016	<i>Parneet Kaur; Rohit Sharma.</i>	Terry Jeon	27
20	Project Fury Trimester Two 2016	<i>Jonah Jackson; Andrew Nicolle; Joshua Fullick; Andrea Wolff.</i>	Chalinor Baliuag	28
21	Project T.M.A.T.O Team Management and Tournament Organiser Trimester Two 2016	<i>Ben Hook; Chris Kilby; Noah Nathan; Dion Rabone.</i>	Simon Park	29
22	Scalable and Adaptive Intrusion Detection System Trimester Two 2016	<i>Megha Kohil; Nikhil Patil; Harman Preet.</i>	Masood Mansoori	30
23	SCIMA - Subcutaneous Infusion Medication Application Trimester Two 2016	<i>Jacqueline Hudson; Swarndeeep Singh.</i>	John Gould	EMBARGOED
24	'Self Serva' Menu Management System Trimester Two 2016	<i>Greg Greenfield; Tom Jonassen; Clive Withers.</i>	Nick Tullock	31
25	SEO – Search Engine Optimisation Trimester Two 2016	<i>Ramandeep Singh; Rahul Rattan.</i>	Simon Park	32
26	STP Student Time Planner Trimester Two 2016	<i>Amal Kuriakose; Aleena Paul; Sreekutty Sasisdharan; Bijoy Varghese.</i>	Terry Jeon	33
27	Women of Influence with Opinions Trimester Two 2016	<i>Carl Halliburton; Nicholas Rowley; Pelise Tagata.</i>	Leonie Trower	34

2016 IT Projects (without detailed reports)

#	Project Titles	Synopses	Students	Advisor
1	Atech Retail Trimester One 2016	Develop an ecommerce interface with an expert system to build-your-own PC from components interface.	<i>Xainchen Li; Vineet Kumar Joshi.</i>	Evan Keats
2	Benefits Rights Service Trimester One 2016	Develop an online portal to advertise and manage delivery of benefits-rights consultancy.	<i>Gurkirat Bopari; Nahidul Nahin; Kunal Rana; Gaurav Shrivastav.</i>	Reza Moosa
3	Credit Sales System Trimester One 2016	Develop a customised sales system, and arrange hosting and integration.	<i>Kashif Ahmad, Anjali Khandelwal</i>	Nick Tullock
4	E-commerce Portfolio Trimester One 2016	Development of a finance and sales support system to track off-line customer credit-sales, managing approvals, scheduled payments and dispatch.	<i>Sunil Bansal; Joydeep Singh; Arun Takhar; Tarun</i>	Steve McKinlay
5	Forensic Tool Evaluations Trimester Three 2015/2016	Evaluation of new forensic tools and development of lab demonstrations of their capabilities.	<i>Devan Savelio; Matthew Stevens; Nigel Wilson.</i>	Leonie Trower
6	Gameified Trimester Three 2015/2016	Further development of a game interface into a viable first release (commercial, in-confidence).	<i>Shrikanth Allu; Thanh Huynh; Sunil Kumar Konakalla; Peti Olsen.</i>	Clement Sudhakar
7	Study Builder Trimester One 2016	Development of an expert system to assist students in planning their studies on a multi-year degree programme with extensive options and majors rule-sets.	<i>Sunil Dhanasekeran; Nhan Hoa Le; Ralph Saplan.</i>	Simon Park and Ian Hunter

ANT Services System

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ABSTRACT

ANT Services is a New Zealand owned and operated cleaning company. There are limited channels available for the customers to reach ANT Services and also they have a manual system for managing their daily operations. There is a pressing requirement to have an online system to automate the management of their operations. Because the business is expanding rapidly and the number of customers, administrative staff and also competitors are increasing every year. ANT Services System Project has designed an online system for managing their daily operations.

Keywords: WordPress, automated testing, web development technology, web interface

1. OVERVIEW

ANT services offer a range of professional domestic and commercial cleaning services. Their day to day operations such as bookings, promotions and customer requests 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 ANT Services administrative staff, and their clients. Consequently ANT wishes to develop a website to streamline their cleaning 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 admin staff for other tasks. A number of Web development platforms, database management systems and methodologies were considered.

to do general management tasks such as manage the site content.

This required achieved business analysis information of the project. This includes the data gathering techniques used to gather data from various stakeholders in the project to refine the requirements and to get the ideas to design the functions in the ANT Services System.

Mixed techniques have been used such as: Interviews; researching of similar systems; reviewing existing documents and questionnaires; techniques to gather data for ANT Services System development project.

The proposed ANT Services System is planned to use the latest web and software engineering technologies to implement the functionalities along with various project management, system analysis and designing techniques to manage and plan the project.

The Project manager used *Rational Unified Process* development methodology throughout the project life cycle in order to perform rework and future additions.

The Project acceptance testing was very successful and this Project has been in operation successfully throughout ANT Services' customers and administration staff now. This will be a huge benefit to both the ANT Services administrative staff, and their clients.



Fig 1 ANT Services System

The proposed ANT Services System will include two main sections in the web interface for customers and management staff. Customers mainly can submit inquiries, deals, and bookings using the system. The Staff section mainly will include the functions like check mails, update blog, upload deals. The administration staff will be able

2. TITLE ANT Services System

3. AUTHORS

The project consisted of an individual student completing his third year project as part of his Bachelor's Degree of Information Technology.

BESTWISE PHASE-1

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ABSTRACT

BestWise project was developed to suit any shopping industry; from consumables, clothing, and grocery to food. This portal has registered suppliers and/or shop owners whose products are compared based on a simple or advanced search. The portal provides all deals available and the shopper is able to purchase the item online from their preferred supplier and have options to be delivered or personally collected.

Keywords: BestWise, Online shopping Portal, Online Comparison of products' prices, unique platform for all suppliers.

1. OVERVIEW

Increasing use of web and internet over smart devices is leading to a huge online market. This online market is attracting not only business people who are already successful in the market, but also small-scale businesses or newcomers also trying their luck in this market. The online shopping industry is supported by a vast number of features and functions and has become more attractive to ensure the widest possible customer access.

To take advantage of this, the client identified an opportunity to develop a shopping portal where he could bring many suppliers to one platform. Phase-1 of the project BestWise was developed; new suppliers will have to register on the portal before they can post their products online. The customer can search for products by product title. The main scope of the project, a comparison of prices of products from different suppliers, has also been met. The customer will be able to purchase the item from their preferred supplier at the offered price.

The required features achieved by the project team are: Portal is able to integrate or access multiple databases provided by various suppliers, simple search features for searching a product in the database, supplier management and customer login with specific privileges as set by the project client (these privileges may change from time to time based on user and heuristic testing), online shopping features with features for applying discounts, delivery and pick up options, PayPal and credit card processing, as well as proper acknowledgement messages as advised by the client from time to time. Also as per the Client's requirements project is Hard-Coded only.

A customer can choose the product with the best price. They can then add the desired product to the cart and from there they can checkout or continue shopping and checkout later. If customer is not logged in, before checkout, system will ask for Log in or in case the customer doesn't have an account with BestWise, customer will have to Register with BestWise.

The Project team used the Agile Model and Scrum Methodology throughout the project life cycle. Though inexperienced, with the help of Agile and Scrum, the team was able to understand the phases and stages of the project. By involving the client in every step of the project, Project team got a high degree of collaboration with the client, which provided more opportunities to truly understand the client's vision.

2. TITLE

BestWise Phase – 1

3. AUTHORS

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

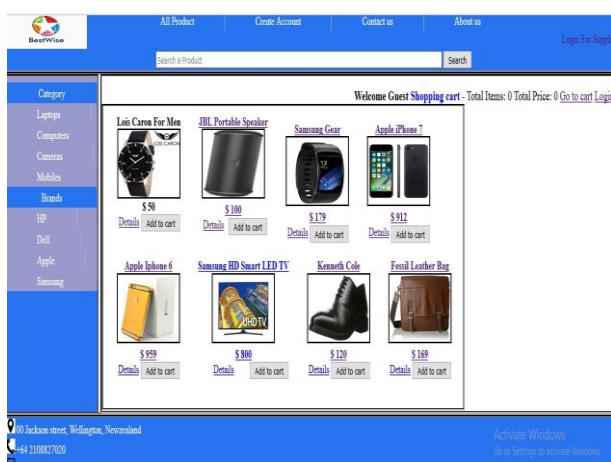


Fig 1 BestWise Phase-1 Home Page

Black Tee – An Investigative Process Using Mobile Phone Forensics

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ABSTRACT

In this project, an investigative process was explored and implemented to determine what malicious software (malware) was installed on a business smartphone. Mobile Forensics was the focus and framework, involving a study and evaluation of forensic concepts and tools. The skills acquired were used to solve a scenario promoted by an online forensics competition: Black T-Shirt Mini-Challenge (cancelled by competition convenor mid trimester, but subsequent to this, an appropriate substitute file was provided by WelTec).

Keywords: Mobile Forensics, Smartphone, Malware, Android, forensic analysis tools, Static and Dynamic analysis

1. OVERVIEW

The Smartphone has become an essential tool for many sections of society, including government officials, businesses and consumers. Smartphones are famous for their versatility, as they provide multiple functionality. They do not seem vastly different from their PC computer counterparts; however, with special hardware and dedicated software used, the nature of vulnerabilities is dissimilar. This results from implementation or design errors, user negligence, and the fact that the devices are mobile and taken within range of possible threats, be it physical, such as theft, or using different connectivity options such as Wi-Fi, GSM, GPS, CDMA and Bluetooth.

Malicious programs are designed to disrupt or damage an operating system and steal personal, financial, or business information. Malware developers use code obfuscation methods, stealth techniques, encryption and repackaging to bypass existing anti-malware techniques.

Android, by Google, is the most popular mobile operating system of today, and endures the largest amount of exploitation efforts by malware authors. For this reason, the focus of this project was primarily towards Android. The following table shows the top malware types detected in 2015 by TrendMicro.

Malware types	Threat percentage
Potentially unwanted apps	50 %
Adware	27 %
Trojans	22 %
Riskwares	11 %
SMSsenders	7 %
Downloaders	3 %

Table 1: Top Android Malware Types in 2015

In the face of rapid technological advancements, examiners are increasingly confronted with a

diverse set of digital evidence. Being able to identify a particular tool for conducting a specific analysis is an essential task, and the verification that the tool can do what is claimed of it. Therefore, a study of forensic analysis tools was implemented, to identify the different functionalities supported by these tools.

Processing the digital evidence contained four parts; source, process (examination and analysis), outcome, and consolidation. For each of the sources that require processing, the artefacts needed to be examined and analysed individually for generating relevant report material.

Through using the two approaches of Static and Dynamic analysis, the malware in the suspect smartphone was detected and categorised, where multiple tools were used to authenticate the results. These tools were explored prior to investigating the given scenario. Static analysis is a way to check functionalities and maliciousness of an application by disassembling and analysing its source code, without executing the application. It is useful for finding malicious behaviours that may not operate until a particular condition occurs.

Dynamic analysis examines the application during execution. It may miss some of the code sections that are not executed but it can more easily identify the malicious behaviours that are not detected by static analysis methods. Although static analysis methods are faster to detect malware they fail against code obfuscation and encryption malwares.

2. TITLE

Black Tee

3. AUTHORS

The project team consisted of one student completing his third-year capstone project as part of his Bachelors Degree of Information Technology - Double Major in Information Security and Programming.

Black T-Shirt (Smartphone) Forensics Challenge

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ABSTRACT

The Smartphone Forensics Challenge project aims to promote the analysis of smartphone devices in order to provide evidence and support during a digital forensics investigation. The methods involved includes, but are not limited to, analysing backup files, gathering metadata, extracting files from memory, reverse engineering .apk files, etc.

Keywords: Smartphone, Digital Forensics, Investigation, Malicious APPS, iOS, Android, Exploit

1. OVERVIEW

The smartphone technology is constantly evolving. With its wide popularity, ease of accessibility and affordability, the majority of the population relies on the benefits a smartphone can provide. Smartphones are quite versatile and can be used for different types of communications from voice, to text, and Internet. The biggest feature a smartphone offers is its ability to connect to the Internet through the use of data, or Internet. This feature is benefited most by apps (applications) which can be downloaded by the user. With the ever-growing popularity of smartphones and apps, some apps are tainted with malicious codes in them that can put the user's privacy at risk.

This Project's purpose is to analyse files provided by the client. The files included consisted of an android memory dump, an iOS backup, and an unknownapp.apk. The aim of the analysis is to answer the set of questions the client had provided us. By answering the questions provided by the client, we will gain an understanding of how an event occurred. It will also develop our skills and knowledge used for mobile forensics.

In order to perform the necessary analysis we needed to do, we required evidence acquisition tools. WelTec had provided us with Santoku VM (Virtual Machine) equipped with mostly all the software we require for mobile forensics. We used a total of eight different tools throughout the life of the project. The next step was to start analysing the files and gather data required in order to provide answers with supporting evidence to the client's sets of questions.

Our team had implemented a modified "Investigation Methodology" based on the *Forensics Examination of Digital Evidence: A Guide for Law Enforcement* released by the U.S Department of Justice. By following this well-established methodology, we have a solid guideline necessary to properly handle the investigation process. The entire process consisted of Preparation > Extraction of data > Analysis of extracted data > Conclusion. The tools we used were mostly used during the analysis of extracted data. This stage included analysing database, reverse engineering .apk and .dex files, and then converting them into a readable format for code inspection, application access, and also analysing geolocation data.

At the end we were able to provide answers to the majority of the questions. But due to time restraint, we struggled to perform the analysis required to answer the last two sets of questions.

2. TITLE

Black T-Shirt (Smartphone) Forensics Challenge

3. AUTHORS

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



Breadcrumbs

Bluetooth Remote File Repository

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ABSTRACT

The Breadcrumbs project was designed to use low energy Bluetooth technology along with a mobile app, database and web portal to provide tourists and trampers with the ability to send and receive information while in remote areas.

Keywords: Bluetooth Low Energy, Tramping, Search and Rescue

1. OVERVIEW

Tourism is a large and growing part of the New Zealand economy. Millions of people visit New Zealand each year and many of these visitors want to experience the native bush and other attractions. This can cause problems as safely travelling in New Zealand bush requires preparation and knowledge that visitors new to New Zealand may not have. The Breadcrumbs Team was created to develop a system that incorporates a database and mobile application technology that enables users to download information about the local environment. It also provides the ability to upload virtual logbooks and leave messages detailing their location. If someone goes missing, this information could be used to narrow the area that needs to be searched. This could save lives and reduce the amount of money spent on search and rescue by the NZ police.

capability, local databases that can connect with the mobile application via Bluetooth and a Cloud based database that can be managed through the web portal.

If a user wishes to use the system, they can register through the web portal. This will enter the user in the database and assign them a unique ID number. When the user is exploring New Zealand, they will have the opportunity to interact with local Bluetooth sites that contain information relevant to the local area, such as descriptions of native flora and fauna. When the user is interacting with one of these local sites, their unique ID will be logged allowing organisations like local councils to generate analytical data such as visitor numbers.

When the system is used in a remote location such as a Department of Conservation hut, the user would also have the ability to leave messages, meaning the site would act as a local logbook. The information stored on these databases would be added to the form of track information and identify potential hazards in the area.

In the event of a user going missing, this unique ID would be used to determine the last site they interacted with, reducing the search area.

The Team used an Agile/Scrum methodology throughout the duration of the project due to the speculative nature of the project and the number of unknowns.

The prototype versions of each component have been completed and are currently being refined.

2. TITLE

Breadcrumbs Bluetooth Remote File Repository

3. AUTHORS

The project team was made up of five students completing their third-year final project as part of their Bachelors Degree of Information Technology.

Breadcrumbs

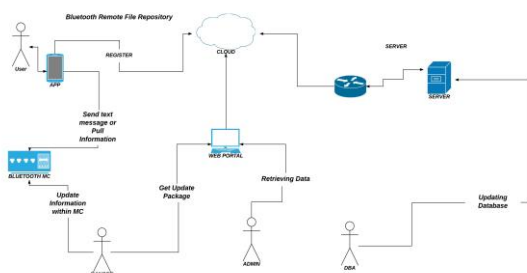


Fig 1 Breadcrumbs Bluetooth Remote File Repository System

Achieving this required four components: A web portal that allows both administrative management and user registration, a mobile application with connectivity to the web portal and Bluetooth

Chimera

Entrepreneurial Small Business Scheduling Application

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ABSTRACT

The Chimera Project was structured around breaking into an untapped market – that of small business and service providers who currently need to rely on their own individual marketing techniques or ads in the classifieds section of a newspaper. Chimera provides a centralised, Cloud-based scheduling system that allows potential clients to book professionals, and for the professionals themselves to easily manage their appointments via their smartphone or PC.

Keywords: Cloud-based, Multi-platform, Scheduling, Small business, User-friendly

1. OVERVIEW

Service providers and small independently run businesses such as private tutors, personal trainers and masseuses currently rely on low-tech and otherwise unstandardized systems to market themselves and attract potential clients. An additional hurdle to this process was the fact that potential clients do not know whether the professional they are contacting will be available at a time that suits them up until the point that they make the call to book.

The Chimera Project aimed to address this by providing a simple, Cloud-based interface to allow clients to find and book professionals by simply searching by service category and selecting an available professional and time from a user-friendly interface.

Needless to say, Chimera also provides the other side of the service for the professionals themselves, offering an equally user-friendly interface for advertising oneself or one's business via the application.

reason, the team decided on creating a multi-platform service, available via the three most popular internet-enabled mediums on the market – Android & IOS smartphones, and PCs.

A native Android application was created, complimented by a device-sensitive website for use via your preferred computer or Apple device.

The team harnessed the SCRUM methodology throughout the project life cycle, maximizing productivity and minimizing re-work by taking an agile approach to respond to any and all changes.

Due to the project's speculative nature, there was no client or product owner to drive the product vision. As such, the team had to pull together and think hard about decisions from a business perspective - what would bring the most value to a potential client?

To appeal to the business side of the application, and in the interest of security, the team implemented a feedback system that discretely allowed professionals to rate their experience with any given client – this would allow them to reassure other professionals that their upcoming appointment is safe, or alternatively whether they are booked with someone to be avoided. This ability to make informed decisions about clients based on other's experience is a key feature not offered by the current low-tech solutions and something the team felt was highly valuable!

2. TITLE

Chimera – Entrepreneurial Small Business Scheduling Application

3. AUTHORS

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

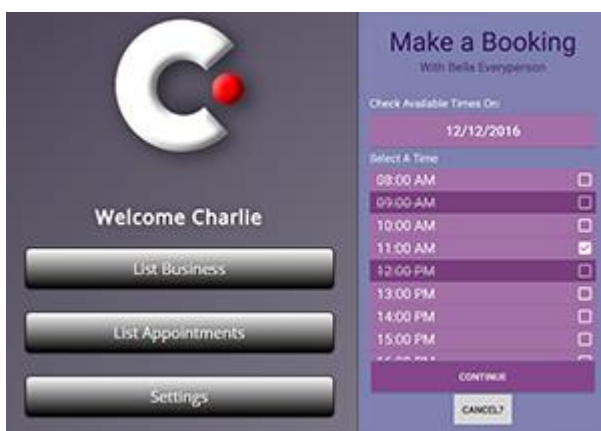


Fig 1 Chimera Application – Web & Android

With end-user experience, always at the forefront of each team member's mind, the project aimed to cater to as large an audience as possible. For this

Cordon Training Tool for Emergency Communication Centres

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ABSTRACT

The Cordon Training Tool was designed to assist trainers of new Emergency Communication Dispatchers with Cordon Placement. This tool will allow a new dispatcher to learn how to follow correct procedure when placing cordons, while under simulated pressure, but without the real world risks. This will provide the user with confidence in their own decision making when working in real situations.

1. OVERVIEW

Emergency Communication Dispatchers are required to make the right decisions under pressure, which means they must receive adequate training to allow for this. The Cordon Project Team developed a computer application that can provide its users with the confidence needed to make the right decisions under pressure.

Their solution was to develop the Cordon Training Tool that will work alongside current training tools. It will simulate real word events that require the user to place cordons that will control and contain the event.

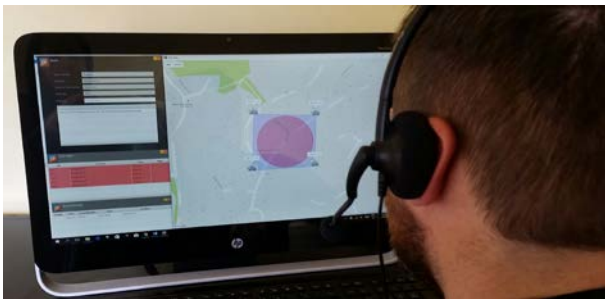


Fig 1 Cordon Training Tool for Emergency Communication Centres

This tool will provide multiple events of different priority levels allowing the user to prioritise each event. Using Google Maps it will allow for the user to see the location of the event and its surrounding streets.

Events that require cordons usually are to keep the public out and/or to keep people in.

To simulate this, a rectangle called a 'Containment Field' was created. This depicts the cordon the dispatcher placed. If it meets all the criteria of correct cordon placement the Containment Field will appear blue, otherwise it will appear orange which means the dispatcher must replace the emergency vehicles to be able to contain the event.

Dispatchers must also place cordons as quickly as they possibly can. To simulate real world pressure an 'Expanding Zone' was created. This Expanding Zone is a red circle that starts at the location of the event and expands outwards. This simulates the vicinity in which the person/s needing to be contained are in. If the dispatcher does not place a correct cordon before the Expanding Zone reaches the max radius the dispatcher will fail to properly control and contain the event. If they do place a correct cordon in time, the Expanding Zone will stop moving once it reaches the Containment Field.

The dispatcher will also dispatch a specialized emergency vehicle that has a particular tool on board that allows for it to track the person/s being contained by the Containment Field. To simulate this specialized tool the Cordon Project Team created a tracker worm that starts from the event location and tracks the person/s until they are eventually caught. Once this happens the dispatcher has successfully completed the event.

The Cordon Project Team used an iterative methodology throughout the Project's life cycle. This allowed the team to break the project up into smaller sections and work on them separately, producing many small deliverables that were eventually put together to produce one big deliverable. This also allowed for each deliverable to be designed and tested separately, then tested again when they were integrated. Additional changes, such as adding a database, was also made possible which we used to future proof the Cordon Training Tool for further versions.

2. TITLE

Cordon Training Tool for Emergency Communication Centre

3. AUTHORS

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

Database Evaluator Tool for SQL Server Databases

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ABSTRACT

The Database Evaluator Project was designed for small to medium companies who do not have enough funds to hire a full time administrator to evaluate the integrity of their SQL Server Databases. It is composed of a: a) Client Application that produces a file containing information about the user's SQL Server parameters, b) Product Website where the file generated by the Client Application is uploaded for evaluation, c) Database Evaluator which produces an evaluation report from the user's parameter file.

Keywords: SQL Server, Microsoft, Databases, Instances, Database Administration

1. OVERVIEW

Secure and efficient database implementation following best practice is one of the challenges for organizations and database administrators. Also, evaluating SQL Server configurations is a time consuming process and involves a lot of manual labor. Furthermore, it is very difficult for database administrators to check and create an inventory of all database parameters especially for large environments.

With the stated challenges, the group created a database evaluator tool that diagnoses and checks the basic implementation parameters of SQL Server Instances and Databases. The product created is targeted for SQL Server Versions 2008 and 2012.

The first one is the Client Application that gathers all the SQL Parameters from a SQL Server instance chosen by the user. The data gathered is put into a dump file which is encrypted for security purposes.

The next application is the Product Website. This is where a user can upload the dump files produced by the Client Application.

The third application is the Database Evaluator itself which the Project Team runs to do the evaluation for them. This application decrypts the dump file and produces an evaluation report based on the parameter values in the dump file.

The team followed the DSDM methodology to build the project to completion. It first involved looking into the tool requirements and estimating if the project can be completed on time. Then after planning, the applications involved were developed through a number of iterations. In the final phases, the applications were comprehensively tested by the Test Manager and all bugs were logged and fixed.

In the end, all three proposed applications were successfully created. The Product Website is publicly available online (<http://sqlstriker.com/>). The Client Application is downloadable from here and people can try it out for themselves.

2. TITLE

Database Evaluator Tool for SQL Server Databases

3. AUTHORS

The project team consisted of four students completing their final capstone project as part of their Level 7 Graduate Diploma in Information Technology.

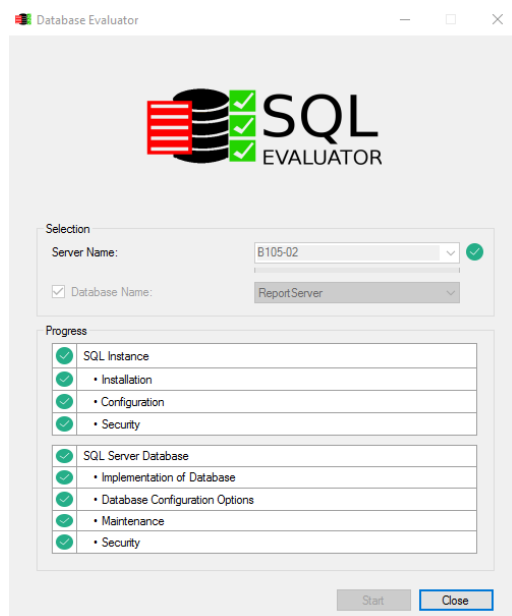


Fig 1 Client Application of our Database Evaluator Project

The project involved the creation of 3 applications working hand in hand to deliver a SQL Server Evaluation report to the user.

E-commerce Web Portal (Daily Deal)

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ABSTRACT

E-commerce Web Portal Daily Deal is an e-commerce website with a 'daily deal' feature. A customer may buy a product offered as a 'daily deal'. The Administrator can add and remove products, and offer them as a 'special offer'. The Administrator can inform customers what products are available on the 'daily deal' by email and provide a link to the 'daily deal' web page.

Keywords: E-commerce, Open Cart, Daily Deal, Auto-mail generation, Payment Gateway, PayPal Express Checkout.

1. OVERVIEW

To boost website sales can be quite challenging right now due to the large amount of competition and readily available e-commerce websites. Our client wanted us to develop an e-commerce website that will make the maximum number of sales and generate the maximum amount of profit. Our client wanted us to develop a 'daily deal' site that will provide daily offers for products to increase customer attraction to our website. Customers will have the ability to look up an item that is offered at a reduced price and view other daily offers showing discounted prices. This was considered one of the main points of attraction to the website. The increased web traffic to these sites may increase both sales and profit overall for the client.

To achieve this, we had to meet three requirements that played a key role during the development.

'special offer' deal appears in a customers' web page with the initial price replaced with new discount price.

- A limited time is given to products on the 'daily deal' and this is usually a special offer for the day. Administrators have flexibility and can fix the time interval for the discounted product so that the deal will be for the fixed interval of time and after the offer finishes, the price will be replaced by the normal set-price.
- Administrators will have the ability to send emails to specific customer groups as a 'special group' and they will be informed of the 'deal of the day' giving them a direct link to the home web page where more detailed information about a featured product is provided.

Our Team used an iterative 'OpenUP development methodology' throughout the project life cycle in order to perform rework and future additions. OpenUP applies an iteration lifecycle that structures how micro-increments are applied to deliver stable, cohesive builds of the system that incrementally progresses towards the iteration objectives. These were done through four phases. After each phase and the milestones of these were achieved we sought our client's and advisor's feedback.

Another key factor to ensure customer satisfaction is the payment method for customers. Customers will have the ability to pay through a PayPal express checkout which is globally accepted.

2. TITLE

Ecommerce Web Portal (Daily Deal)

3. AUTHORS

Our project team consisted of three members completing our final year project as part of our Graduate Diploma in Information Technology.

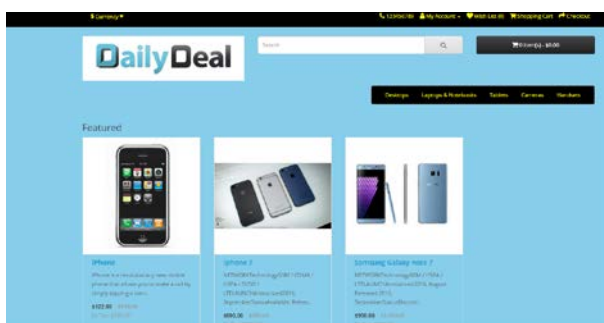


Fig Customer Panel for Ecommerce Web Portal Daily Deal (with featured product)

The goal has been achieved through these requirements.

- The implementation of the 'daily deal', where the administrator can add products to the daily deals and have these added to the website under 'special offer'. The

En Route Social Travel Application

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ABSTRACT

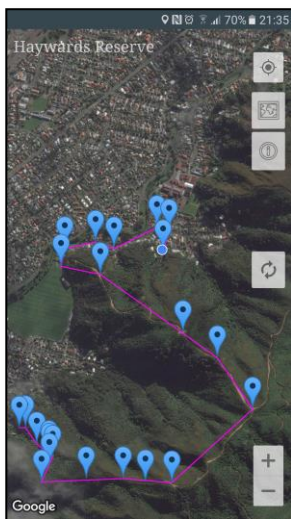
En Route is an innovative travel application for users to create and share trips with friends and family, to keep them informed of their current location. Recommendations and points of interests can be added to a followed trip. The team integrated Google's services to deliver a solid user experience, all the way from authentication to mapping.

Keywords: Travellers, Geolocation, Mobile Application, Trips, Itineraries, Sharing, Recommendations

1. OVERVIEW

As it is becoming increasingly easy to see the world, travellers may desire to share their adventures. And as we live in an always connected society, where everything can be accessed, the En Route team was established to build an application using mobile technology that could be used by thousands of travellers worldwide to enhance their journey, anywhere, anytime.

Their solution was to create an Android application supported by modern Cloud services and a relational database. Industry encryption mechanisms have also been implemented to protect sensitive user information while travelling on the network.



The team developed a multi-tier system which uses the mobile application as the presentation tier, a Java application-server as the logic tier, and a relational database for the data tier.

When a traveller shares a trip, their friends or family receive an invitation via email. It is then possible for the follower to check on the traveller's current

location and even post recommendations to their itineraries. As this feature is exclusively invitation-based, travellers are both able to remove followers from their shared trips or simply delete an unwanted recommendation; whereas followers can unfollow the trips they have been invited to anytime.

Travellers can also use the application to log their journey as they progress (point A to point B). And thanks to using Google's authentication as the means of login into En Route, users' data is linked to their account and therefore can be accessed from any Android device.

Security was not left behind as SSL encryption was implemented from end to end, protecting the user from any potential man-in-the-middle attacks.

Amazon Web Services are used to host the application-server and database in the Cloud, providing En Route system with speed, scalability, and 24/7 uptime.

The team used an iterative development framework during the project implementation, so as to allow further modifications and enable additional features to be incorporated with ease. Each iteration was closed only after all tests had passed.

This project has been in operation successfully throughout its team members for three months and is in its final testing phase with the possibility to roll it out in a few months.

An iOS version is also being considered in order to bring En Route to as many people as possible.

2. TITLE

En Route Social Travel Application

3. AUTHORS

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

Finder Android Application for Lost Mobile Phones

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ABSTRACT

Finder is an Android mobile application which is used to find lost android mobile phones in an efficient way. Finder Application is very low in size and never slow down other applications running in a mobile device and also includes various features which are very useful to the user. Rather than any application with similar features which is available in play stores, Finder delivers its services only to save the device from theft and robbery.

1. OVERVIEW

People use mobile phones not only for communication but also for many other purposes such as, saving account numbers, important pdf files (like certificates, driving license etc.), saving bookmarks, saving passwords and pin numbers, addresses and card numbers, bank details etc. Valuable personal information such as images, videos, memos etc. are also being stored in mobile phones. Research reveals that people aged between 20 to 50 years of age suffer a disorder called 'Nomophobia' which is an anxiety disorder if not able to have mobile phone contact.. It is in this context that we created the Android application called 'Finder' to help people find their lost mobile phones.

Features Explained: You can enjoy the following features on installing Finder App in your Android mobile. Whenever a robber tries to unlock the mobile phones by entering the wrong password multiple times, the front camera of your mobile will automatically turn on, take a photo of the robber and will send it to the admin personal e-mail with the location of the robber.

Next feature is getting the location of the device and changing the profile by sending a text message. If we misplace our mobile phone and unfortunately it is in silent mode, we can change the silent mode to general mode by sending a specific code text message. Similarly if we send the code 'location' to Finder we will get the location of the mobile phone as reply. If we misplace our mobile phone and we produce a whistle sound the Finder will detect the whistle and beep in reply.

We can also restrict uninstalling the application by a third party so that nobody can uninstall the application without the help of user.

The most important feature of the Finder is that, if we totally lose the device and we are unable to retrieve it, then data from the device will be erased

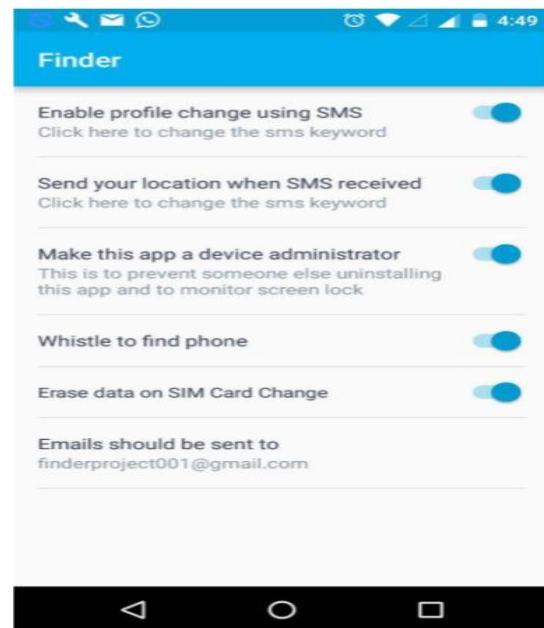


Figure 1 Screen shot of Finder Application showing the features of application.

when the robber tries to change the SIM card of the mobile.

This project has worked successfully in all versions of Android devices and does not slow down other background applications. We also did a questionnaire survey before and after the App Finder was developed and received positive feedback from our colleagues as well as our advisor.

2. TITLE

FINDER Android Application for lost mobile phones.

3. AUTHORS

This project was completed by three students pursuing Graduate Diploma in Information Technology Level 7.

'FlightAdvice'

Wireless Weather Station Project

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ABSTRACT

FlightAdvice, the Wireless Weather Station project was designed to produce a wireless weather station. The objective of the wireless weather station is to provide real-time and historical weather information. This project was planned to execute in two phases. The objective of phase 1 is to complete the hardwired option of the weather station and the objective of phase 2 is to build the wireless option of the weather station. The hard wired option was completed successfully. The objective of implementing a hard-wired option is to make sure that hardware is configured correctly and to reuse some of the system modules for the wireless option.

Keywords: Weather Station, Arduino Uno, Sparkfun Weather Shield, DSDM (Dynamic Systems Development Method)

1. OVERVIEW

In New Zealand weather could be varying within a day so the public may not want to rely on weather information that public media provides. Weather in microclimates may vary compared to the weather in the area. Due to safety reasons, people would want to find out localized weather information. The FlightAdvice weather station is designed to cater to the requirements of the hang glider community of New Zealand. It provides real time and historical weather information.

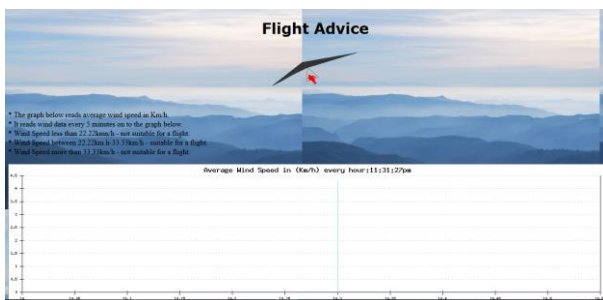


Figure 1 The FlightAdvice website showing information of wind speed on a graph.

The weather station unit for phase 1 consists of Arduino Uno Eleven microcontroller, a Sparkfun weather shield, and a weather meter. The phase 2 of the weather station will consist of an additional Arduino compatible GSM module. The weather station unit consists of sensors for wind speed, wind direction, wind gust, temperature, humidity, and light. The system consists of an Arduino Uno module, a JAVA controller application module, a database module and a web page module. The Arduino Uno Eleven microcontroller converts analog sensor signals to digital sensor signals.

The Arduino Uno module also builds a string (read line) of weather data. The JAVA controller application module reads a read line string from the COM port and dissects the read line string into sections. Once it is being dissected the weather data is inserted into a database. The database

stores the weather data. The web application (written using HTML, CSS, JAVASCRIPT and PHP) loads the data onto a web page. The real-time and weather data for the past one hour is being shown on the web page, using graphs.

FlightAdvice project used DSDM (Dynamic Systems Development Project) methodology throughout the project cycle. The system was developed in iterations. Each iteration had a design, implement, test and delivery phase. Due to the practice of iterations the client had been able to assess the product and give recommendations to improve the product. The client also had been able to give recommendations on how to build the next iteration. In using DSDM methodology the client doesn't have to wait until the end of the project to examine the end product. Testing the system carried out till the end of the project. Testing was completed by a user acceptance testing, where the client expressed her satisfaction. It was agreed with the client that the phase 2 of the project will be completed in next year. Currently, it is running on a local server. The system can be implemented easily into a web server and once the system is up and running weather information can be read using cell phones.

The hard wired option can be used by parties who are interested in storing weather data in the database and monitor the weather data. The stored weather data could be used for analysis purposes.

2. TITLE

FlightAdvice, Wireless Weather Station Project.

3. AUTHORS

Phase one of the project was completed by a final year Bachelors Degree of Information Technology student majoring in Software Engineering at Wellington Institute of Technology.

Group Discussion Support System

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ABSTRACT

Group Discussion Support System is an online discussion system where the participants can express their ideas and suggestions and also vote on a specific topic without having to worry about how the senior members are going to react. In this system, the admin invites participants and selects a neutral Adjudicator to run the session. All the participants including the Adjudicator are given a random unique ID. The Adjudicator has some privileges like adding time, disabling/enabling chat, sending the voting results to the participants.

Keywords: Group discussion, confidential discussion, single winner voting, one time discussion session.

1. OVERVIEW

In an organization, there are many discussions where the employees take part to give their ideas and suggestions. The employees often keep their suggestions and ideas to themselves thinking that they would offend their seniors or simply due to lack of confidence. The client wanted to abolish these situations so that people can speak their mind and contribute reaching a right decision. For this to happen, the client wanted us to develop a system where participants can express their views and suggestions in a discussion without having to worry about their identity being revealed. The client also expressed his idea on the session to be run by a neutral Adjudicator with some privileges.

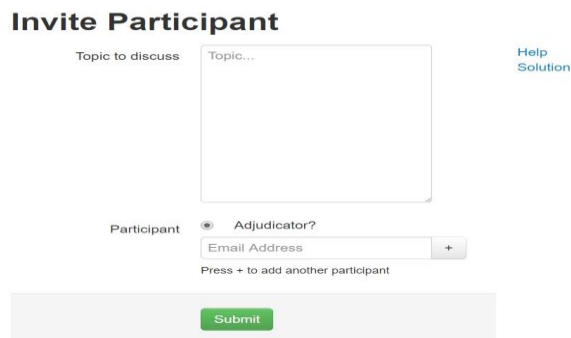


Fig: User Invitation page of Group Discussion Support System

The GDSS team achieved most of the client's requirement such as given below:

An admin can successfully invite participants through an email to a discussion where the participants can comment, chat and vote for the specific session. They can also select a neutral Adjudicator for the session.

The participants are assigned unique random user ID for the session and the same ID will be used for

the chat function too. The participants can also vote on the list of comments they agree to.

The session will be run by an Adjudicator who has the authority to add time if not sufficient and also enable or disable the chat function as the Adjudicator sees fit. The Adjudicator can also stop the session and send the discussion results to the participants through an email.

The voting system adopted in this software is the Single Winner Voting System. In the Single Winner Voting System, the comment/suggestion with the highest vote is declared the winner.

The Team used the Open-up development methodology throughout the project life cycle in order to design and perform. The team initially understood the concept of the system to be developed with the help of the client. Then, the team established the baseline of the system considering the confidentiality and the single winner voting system. Following on the establishment of the baseline, the team continued with the construction of the system.

The Group Discussion Support System project has been tested and runs successfully. The GDSS software is currently hosted under the sub domain of www.buysellpromotion.com.

To test the function of the software:

http://gdsspr.buysellpromotion.com/invite_participant.php

2. TITLE

Group Discussion Support System (GDSS)

3. AUTHORS

Our project team consisted of only two members, completing our final year project as part of our Graduate Diploma in Information Technology (level 7) programme.

Help Desk Simulator 2

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ABSTRACT

The Help Desk Simulator Project is designed to assist the tutor to conduct the online time based test for the students. The simulator allows a student to sit a test over a period of time and each question in the test has allotted time given to it. The 'time' is what the student cannot see. This was done to alleviate exam anxiety from a students' point of view.

Keywords: Time based test system, ticket system, check test, Visual studio 2015, and Microsoft SQL server 2016

1. OVERVIEW

Our client, Leonie Trower, who is a senior academic staff member at WelTec, had an excellent idea to develop a tailored version of a help desk system. Our team created an online time-based test system for the Diploma of Computer Servicing (Level 5) students. The online time based test system will run on the SOIT (School of Information Technology) network.

The team developed a web application for our client that included features such as a time limit for tests, a ticket system, a student login portal, and an administration login area.

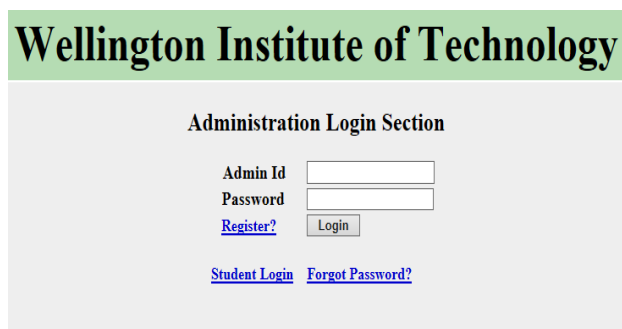


Fig 1 Login Option for the admin and student_Help Desk Simulator

Software requirements:

Visual studio 2015 was used as it is an Integrated Development Environment from Microsoft and is one of the most powerful tools used nowadays to develop websites.

Microsoft SQL server 2016 was used to setup the database for our client.

Log in space:

There are two separate logins so that a students' is kept separate from the tutor's login.

Steps

The administrator will create the test and set the time limits for each question. Time limits and marks for each question will be assigned.

Once this step is complete the student will be able to attempt the test though students will not be able to see the time limit. At the completion of the test the students will see their pass/fail result.

Methodology

The Team used 'Open Up' methodology throughout the project in order to achieve the desired output.

After the completion of the project feedback sought from other students has been positive. Students had the opportunity to test the system for themselves.

There is a lot of scope in this project for future development.

Conclusion

This Project has had a successful outcome and has been handed over to the client.

2. TITLE Help Desk Simulator

3. AUTHORS

The project team consisted of four students completing their Graduate Diploma in Information Technology as a part of their second trimester studies.

Helpdesk Simulator

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ABSTRACT

Wellington Institute of Technology (WelTec) offers a course called "Service Desk". One of the weaknesses of this course is that students have trouble gaining experience outside of the class room. This proposal is to build a Help Desk Simulator program, to simulate the Help Desk system and allows students to work on their assignments at anytime and anywhere independently. Moreover, this system will simplify the student assessments which will assist the tutor to work and teach more effectively.

1. OVERVIEW

Wellington Institute of Technology is the leading territory education provider of vocational education in the Wellington region. It offers a number of IT courses, which include courses such as Networking, Security and Assurance, Computing, Software Development and Testing and Computer Helpdesk. WelTec offers a service desk course; however there are some issues in regards to accessibility of the tool off-campus. There are also some complications in the testing environment. The development of a new system will enable off-campus access for students and remove complications by allowing the tutor to run practical testing which simulates the work environment practices.



Fig 1 ICY Vision - Contextual Awareness for the Visually Impaired

The limitations of the software that's currently used in the Service Desk Course, is that the old software is not suitable for use in training as it is expensive and too large for home use. Our team has chosen the Scrum Agile Development Framework to develop the Help Desk Simulator

project. The client has given some specified features and expectations to be used on a new website which will be established soon. In addition, it's important to engage with the client and collaborate with team members during the development process to achieve this project's goals. The benefit of using this model is it helps to develop the project faster and it allows the client to change the priorities of the requirements quickly if any changes occurred.

The Team used an iterative technical/development methodology throughout the project life cycle in order to perform rework and future additions. These were based on tester feedback and functional testing. Change requests were created which lead to further development, testing and evaluation as required. This cycle continued until that 80% tester satisfaction feedback was attained, and then deployed once the client had signed off each iterative.

This Project has been in operation successfully throughout the website. It was delivered to the client on 10/10/2016. There was no cost to develop and build this system. The entire code and user manual was handed to the client. In future it will be developed further and will be integrated into the WelTec website so that the students of the course will be able to use it.

2. TITLE

Helpdesk Simulator

3. AUTHORS

The project team consisted of four students completing their Final Semester project as part of their Bachelor's Degree and Graduate Diploma of Information Technology Software Engineering Major.

Holographic Kiosk Project

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ABSTRACT

The Holographic Kiosk project is to show the 3D model in a video format by kiosk machine and display prototype.

Keywords: Visual studio C++, 3D model video, acrylic sheet and kiosk machine.

1. OVERVIEW

The reason to develop this design process is to be more interactive with the customer and student than the old method. Holographic Kiosk is a combined process of two different methodologies; kiosk machine and holographic creation. The kiosk machine can be placed in public places for customer use, so by combining the machine with 3D viewing model would be perfect for the present day and it also could be placed in schools and colleges for an interaction with the students. The project is developed based on iterative and agile methodology. It is called iterative because the six-core development process is repeated to add additional functionality to the overall system.

Holographic Kiosk display is more and more popular in every kind of stage. The 3D model could give you more details from all directions than 2D images. The way to develop the kiosk machine that we used was Visual studio C++, acrylic sheeting and 3D model video. If a user wants to display a 3D model video in the Kiosk machine, they just need to put the original video in Visual studio which was installed in the Kiosk machine and then you could see the output. The only limitation is the object in the video should be 3D model so that you could see 3D model through the prototype. The prototype was developed by using acrylic sheeting because it is less expensive than glass material and it also has more light intensity than glass. For cutting the acrylic sheet we used a laser cutting machine to obtain the proper angle and shape.

We can use the leap motion sensor to see the video that we had saved in the Kiosk machine and have fun with the computer by interaction.

In this project, we achieved things like creating a 3D video but there will be some drawbacks on the process like only 3D image running video can be used. Secondly there is no interaction with the display functionality.

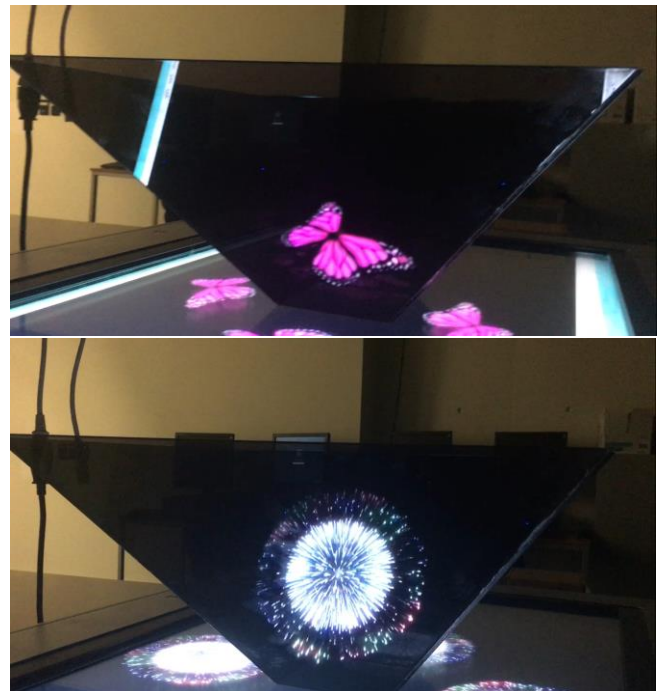
This project is very flexible and easy if any other student group or oncoming student will work on the future development.

2. TITLE

Holographic Kiosk – combined technology of Kiosk machine and holographic technique.

3. AUTHORS

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



Network Course Study Development

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ABSTRACT

The Network Course Study Development project idea was to create case-based materials for a practical course that requires the students to analyse an environment, adapt network design, configure and test it. With particular focus on practical learning, the students would learn how networking works and how to apply this knowledge to meet customer needs. To make the education process more efficient, it was planned to develop a special Cloud-based network environment simulation software.

Keywords: Cisco Network Course, Network Simulation, Virtual Network Environment, Amazon Web Services

1. OVERVIEW

The Networking Course Study process is based on the study materials provided by vendors. In most cases, their approach to learning things tends to be by rote. However, rote learning is a method of education in which students are taught to memorise and recite basic facts, often through a great deal of repetition. This is opposed to critical thinking or problem solving, in which students are forced to apply the concepts they have learned to theoretical or example problems. Therefore, we are offering a method of teaching networking with a particular focus on practical learning. This allows the students to learn how networking works and how to apply this knowledge to meet customer needs.

To provide Cisco Networking Course training an institution needs to conform to the Cisco Academy standards. However, it is very expensive to maintain an extensive network. Fortunately, this problem might be solved with a special networking simulation software deployed in an Amazon cloud. The solution comes with a friendly graphic user interface for network design and simulation control in addition to virtual machines running the same network operating systems as used in Cisco's physical routers and switches. In short, it is a flexible, scalable, all-in-one virtual networking lab.

Virtual Networking Environment (VNE) is the tool for designing and building complex network topologies including routers, switches, and firewalls. VNE is mainly intended for personal study, certification study, network design and modelling. It allows to emulate complex network equipment. Such as Alcatel-Lucent Service Router, Cisco Advanced Security Appliance, Cisco Cloud Service Router, Cisco XRv Router, and many other Cisco routers and switches.

Here are some key features of VNE:

- The Virtual Network Environment is deployed in the cloud of Amazon Web Services hosting provider.
- Ease of install. All you need is an AWS account, then you can create a new VNE server from a public snapshot with the same name.
- Ease of maintenance. Since VNE is just an Ubuntu instance with pre-installed tools it is easy to keep it updated: auto-update script will automatically run once a week and will do all the work for you.
- VNE has web-based interface.
- Multi-user mode. Team members can share the same VNE instance, so everyone can work with the same server and do not interfere with others.
- Portability. You can export VNE project into a zip file and import it on another VNE instance.

2. TITLE

Network Course Study Development

3. AUTHORS

The project team consisted of four students completing the project as part of their Bachelors Degree of Information Technology and Graduate Diploma in Information Technology.

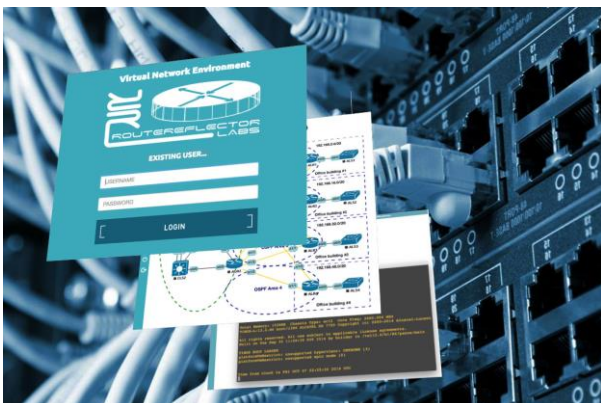


Fig 1 Virtual Network Environment – All in one networking lab

One Real Estate System - Profound Property

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ABSTRACT

The One Real Estate System Project is related to the web application of a real estate agent. Real Estate management system is advanced solutions for their estate problem. User shows all the properties of buyers that are secure & verified and send them to the builder. Real estate system buys the property and verifies them and the online service is provided by us free of charge. Registration is also free. The user can register by using Real Estate System then buy the property and verify them. In due course, our administrators complete the sale. Our main concept is giving best and quick results to the user.

1. OVERVIEW

The Internet has become by far the best platform for real estate marketing today. Nowadays, when everything is online, how is it possible that real estate left web application behind? There are lots of real estate companies who advertise their property online so the idea behind developing is that their property can also sell or buy or even rent property using this. These applications are not widely popular but in future, they have large scope of growth.



Fig 1: One Real Estate System

This website is an online real estate system through which individual agents or buyers can maintain their property document keeping and managing property registration and also access its information and manage all the adding, updating, deleting the ads and some of its tasks. The admin user can inform agents and update the information regarding property and cancellation of property or changing buyer's choice. The system is very useful for companies or builders that can post and edit the information of their properties and their personal information and admin can monitor records of all of them. The system is also useful which also keeps track of account details of buyers and investors.

2. PURPOSE

This website is an online real estate business website through which a user can access its information and manage all the adding, updating, deleting the assets and other tasks. The Admin user can change or update the information regarding property selling and buying or cancellation. The system is very useful for companies who develop apartments, hotels, residential properties and commercial properties. Companies or individual agents can also advertise their property.

3. PROJECT GOALS

- ✓ **Planned approach towards working:** The working in the organization will be well planned and organized. The data will be stored properly in data stores which will help in retrieval of information as well as its storage.
- ✓ **Reliability:** The level of reliability in this proposed system will be high due to the above stated reasons. The reason for the increased reliability of the system is that now there would be proper storage of information.
- ✓ **Accuracy:** The level of accuracy in this proposed system cannot be decided because here user buy and another user build the home. There is no guarantee.

4. TITLE

One Real Estate System

5. AUTHORS

The project team consisted of four students completing their capstone project as a part of their Graduate Diploma of Information Technology – Level 7.



Dog Holiday Park and Daycare in Wellington, NZ

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ABSTRACT

PETOPIA was set up to provide dog owners with an alternative to leaving their dogs 'home alone' while they go to work or on vacation - a safe, caring, and happy environment for their dogs. The **PETOPIA** project was undertaken to provide customers with an easy online platform to utilize the services being provided by the company.

Keywords: Dog Day Care, Day Boarding kennels, Website, Mobile application

1. OVERVIEW

Nowadays, most people go online to search for services or their requirements according to their needs. **PETOPIA Dog Daycare** refers to a short-term boarding service for dogs. In order to request for a service the users have to print out the registration and booking form. Then, fill out these forms and send them back to **PETOPIA Dog Daycare**.

This project was intended to develop an interactive dynamic website and a mobile application. This requirement was fulfilled by using HTML as a designing language and php as a dynamic language. A database was created to store user information.

When users desire to request for a service for their dogs they can simply visit the website and register themselves using online available forms. They will be issued with the Customer and Dog ID. They will get this information in their e-mail. After that, users can use that information and complete an online booking form. **PETOPIA** staff will get user's information on their e-mail and it will be stored in the database as well. Every new user will be issued with a new ID. This saves a lot of time and effort for user and **PETOPIA** staff as well.

A mobile application was also developed for the user to keep updated with the dog's situation and work-outs during their stay in the park. Only a registered user can login by using the Customer ID or Dog ID in the application. However, it is not connected with the

database. It is a static application for further development.

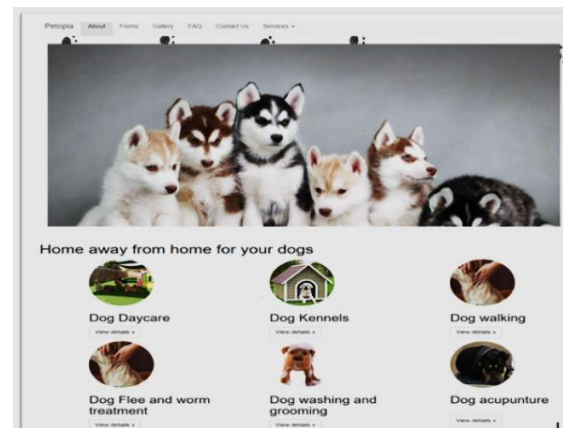


Fig 1 PETOPIA- Dog Holiday Park

2. TITLE

Petopia Holiday Park and Daycare

3. AUTHORS

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

Project Fury

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ABSTRACT

The Project Fury system was designed as an Android based companion tool utilising a Kanban style visual board system to aid students with the task allocation aspect of Project Management, to help students increase productivity on assignments or projects.

Keywords: Project Management, Task Management, Productivity, Companion Tool, Android, Kanban

1. OVERVIEW

Students typically struggle with task management; when it comes to breaking down assignments or individual/group projects into their component tasks, structuring and managing these can become arduous in itself which can be discouraging for many students. The Project Fury team was established to develop an application using commonly available mobile technology to enhance the project management capabilities of students.

Their solution was to develop a system utilizing Android mobile technology, a Kanban style visual board system, and a cloud hosted web service to achieve this.

application; once logged in, the user has access to a dashboard showing their progress at a glance, a backlog of all tasks across multiple projects, and individual project Kanban boards. The user can create new projects and tasks, as well as edit these. These can be organized into different stages of the project lifecycle using existing or user created columns. The Android application is persistently storing, retrieving and updating user data to the cloud based web service, allowing access from multiple clients.

The Project Fury Team used a Scrumban/agile methodology throughout the execution of the project in order to structure the approach to development. This allowed the team to successfully use Change Management to control the scope of the project. Throughout the project, testing was a key focus to ensuring acceptance criteria were met, and was able to achieve a successful result.

This project was able to conduct End User Testing successfully, which received positive and constructive feedback. This feedback validated the team's assertion that there was a market for this type of a product; this also indicated that this product was received favorably by the target audience. In future, the team would use the data gathered for future improvements or features to be integrated into development of Project Fury. Overall, the team felt that the End User Testing was essential to the completion of Project Fury as an innovation.



Figure 1 - Overview of Project Fury System

This system consists of two key components: an Android application, and a cloud hosted web service, backed by a NoSQL database. The Android application allows the user to interact with the system through an interactive Kanban style visual board system. The cloud based web service implements a REST API to allow data to be stored and retrieved via a client application.

The Project Fury system allows a student to create a personal account to login to the Android

2. TITLE

Project Fury – The Project Management Companion tool

3. AUTHORS

Project Fury was developed by a team of four students as part of the third year student project component of the Bachelor of Information Technology. The team consisted of three programming major students and one unendorsed student.

Project T.M.A.T.O

Team Management and Tournament Organiser

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ABSTRACT

Project T.M.A.T.O allows users to quickly and simply manage teams and organise tournaments for any sporting event. This project was aimed at schools and sporting organisations to allow them to quickly and efficiently manage their events.

Keywords: Sport, Event Management, Local Support, Event portal, Customer Relationship Management (C.R.M), Knowledge Management.

1. OVERVIEW

It is difficult for organisations of any size to organise tournaments and events, and when done manually events tend to overwhelm managers. Event organisers suffer greatly from this because of the time required to manage and create events without a complete and effective software solution.

New Zealand is a country that loves its sports, whether it be local clubs, schools or just a few friends playing a game over the weekend. Unfortunately teams and tournaments are often mismanaged due to the difficulties involved in organising groups of people. This lack of organisation when dealing with sports tournaments causes headaches for everyone involved, parents and event organisers alike.

This project offers a way for even a single person to create and manage their own tournaments, teams and players while allowing participants to easily access information about their tournament. This ease of use enables T.M.A.T.O to scale to any size required, offering communication and management to all participants.

and a robust front end website that enables users to create and manage their teams online, from any device.

The website creates a portal for managing each individual player, including their teams and tournaments they are participating in. The information provided about players, teams and tournaments enables us to facilitate relationships between event creators and related businesses.

This provides the opportunity for the T.M.A.T.O team to track trends for targeted business goals, including: directed marketing to users for sporting equipment needs or venues for hosting events.

The T.M.A.T.O team used an iterative development methodology throughout the project life cycle in order to facilitate continuous feature implementation. These features were based on market research and feedback from users of competing software. Change requests were created which helped realign the development onto core requirements. This cycle continued until requirements were met, and the changes deployed with the sign off of the team. The project has yet to enter the full user testing stage, however work will continue on the project until the team is satisfied with the final working product.



Fig 1 TMATO team page

To achieve this, the T.M.A.T.O team needed to create two components: A database to store and manage player, team and tournament information,

2. TITLE

Project T.M.A.T.O - Team Management and Tournament Organiser.

3. AUTHORS

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

Scalable & Adaptive Intrusion Detection System

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ABSTRACT

The IDS Project was designed to provide security to the client's network and to check the malware propagation by the means of Snort rules.

Keywords: Server-honeypots, Snort, Intrusion Detection System, Snorby.

1. OVERVIEW

The current situation of the market is very clear and understandable that for every enterprise, information security is a huge concern. There are various methods that are developed to secure the network infrastructure like encryption techniques, implementation of firewalls and the other patch applications, virtual private networks etc. though it is true that IDS enhances information security but it should not be considered the complete solution for this.

Many open source network intrusion detection systems are in use and deployed in the organizations. Those Open source network intrusion detection systems which are popular in the market are Snort, Bro and Suricata but for this project we have used Snort. Our system will be used to defend against the unwanted intrusions like malware propagation. Things go much easier for the attacker or intruder when vulnerable systems are scanned and attacked. We as team developed an IDS system where the team has imposed two features, scalable & adaptive. Scalable in the sense more sensors can be included into the system. The process of adding sensors to the network is easy. All we need is a system to run a virtual machine and an ip. We then need to add the ip address to the sensor's.txt file. Moreover, there is no need to change the network configuration to meet the new setup (adding a new sensor). Adaptive because the system adapts itself to the changing dynamics of malware attacks by managing & automating malware capture, also the signature creation. Our system has passed some test where it compiles the hex strings of the binary files that generate a unique signature random number as a flag for Snort to generate alert. The whole process includes all other pre-configured intrusion rules in the directory of Snort.

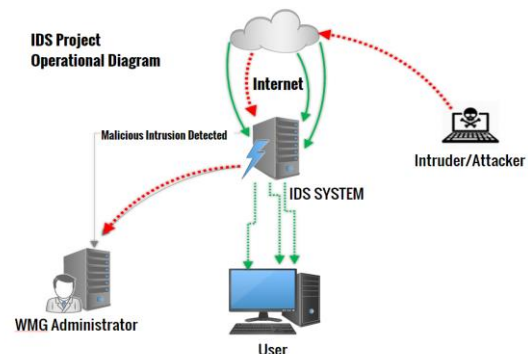


Fig 1- Scalable & Adaptive Intrusion Detection System

This required achieved using all these tools: server honeypot, Snort, Snorby. When an intrusion tries to attack one of the systems and it passes the firewall, IDS tries to detect it whenever the user tried to download the malware and it becomes infected. When it matches with the created patterns then it will display or generate the alert.

The Team used an iterative development methodology throughout the project life cycle in order to do the different iterations. Change requests were created accordingly. Team performed the testing by creating the testing plan and then the testing report.

This Project has been accomplished successfully and is accepted by the Client. The "Wellington Management Group" 40 Taranaki Street.

2. TITLE

Scalable & Adaptive Intrusion Detection System

3. AUTHORS

The project team consisted of three students completing their Level-7 capstone project as part of their Graduate Diploma in Information Technology.

'Self Serva' Menu Management System

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The Self Serva system is a speculative project that aimed at designing and building a menu management system, which would be able to provide diners the opportunity of viewing and ordering a meal or beverage from their Android smart phone.

Keywords: Restaurants, Management System, Android, Web Application

1. OVERVIEW

The Self Serva system was designed to provide restaurants and their diners an opportunity to view menus and place orders using an Android smart phone. The system has been designed so that it can supplement the ordering process without interfering with a restaurant's day to day operation.

The inspiration for the project originated from suggested improvements that could be applied to various facets of an establishment. Some of the idea stemmed from experience with poor service, incorrect billing and long wait times.



The conglomeration of the project ideas were gathered from our team's personal experience as well as feedback we received from surveys and other requirements gathering techniques.

Our solution was to design a mobile application that could be used to locate a restaurant using either a QR code or location. This would allow the user to view menu dishes and beverages. To make the above possible, we were required to design and build a web based application that could be employed for the purpose of creating and administering menus.

We also wanted to provide users with the ability to place and pay for orders; this feature also required

support from the web application, providing kitchen staff with the information they require to complete an order.

The mobile application implements a number of smart phone technologies that allow it to deliver the features mentioned. The web application was built using various frameworks that reduced the development time and complications, such as security.

The Self Serva team applied the SCRUM methodology which is an agile approach to software development. This allowed the team to design and complete the project while still having flexibility to improve or reactor features. Testing was completed consistently throughout the project. These tests varied between the applications and many testing principles were employed. The final user acceptance testing was completed during the final sprint, which lead to a number of minor changes on the web application and Android app interface.

The project had a large scope and could be expanded by adding more functionality. Some of these features include the ability to place reservations and provide restaurants with analytics.

2. TITLE

Self Serva – Menu and Restaurant management system.

3. AUTHORS

The project team consisted of three students completing their third year project as part of their Bachelor Degree in Information Technology.

SEO - Search Engine Optimisation

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ABSTRACT

The SEO Project was designed to affect the appearance or visibility of a website in search engine result pages. The visibility of a website can be paid or unpaid, but generally if a website needs to appear in the top position of search engine after an organic search (unpaid search) then SEO is an important process to use.

Keywords: Online Marketing, Digital Marketing, Search Engine Optimization, Social Media Marketing, Content Marketing

1. OVERVIEW

Nowadays, the web continues to expand at the speed of light, search engines become an increasingly necessary part of daily online life. Today there are many ways people find content on the Web; some of the techniques are: typing a URL directly, clicking a referring link on another website, selecting a website from a search engine results page, and using social media networking sites.



Fig1- Search Engine Optimization

Search engine optimization (SEO) is the process of improving the volume or quality of traffic to a web site from search engines via "natural" or unpaid ("organic" or "algorithmic") search results as opposed to search engine marketing (SEM) which deals with paid inclusion. Typically, the earlier a site appears in the search results list, the more visitors it will receive from the search engine. SEO may target different kinds of search, including image search, local search, and industry-specific vertical search engines. This gives a web site web presence.

As an Internet marketing strategy, SEO considers how search engines work and what people search for. Optimizing a website primarily involves editing its content and HTML and associated coding to both increase its relevance to specific keywords and to remove barriers to the indexing activities of search engines. Because effective SEO may require changes to the HTML source code of a site, SEO tactics may be incorporated into web site development and design. The term "search engine friendly" may be used to describe web site designs, menus, content management systems, images, videos, shopping carts, and other elements that have been optimized for the purpose of search engine exposure.

Our SEO project will help ikidzone to reach a highly motivated target audience (proactive audience) through natural search engine rankings. A proactive audience increases website conversion rate resulting in a positive ROI.

The Team has used six sigma methodologies throughout the project in order to achieve the desired objective of this project.

This project was successful to achieve the desired goal for ikidzone website.

2. TITLE

Search Engine Optimization (SEO)

3. AUTHORS

The project team consisted of two students completing their Project for Graduate Diploma in Information Technology.

STP Student Time Planner

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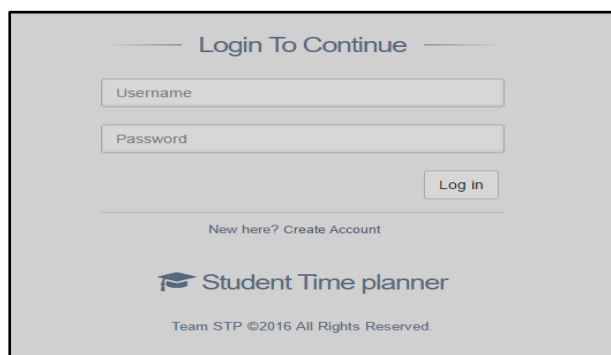
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ABSTRACT

Student Time Planner is a web system developed for students to manage their time during their academic life. The improved version of the Student Time Planner is to manage their time as well as to organize their academic work. Students can organize all their assignments and the tasks like reading, revision and preparation for exam on a weekly basis and in a well-organized manner.

1. OVERVIEW

Students are facing many problems in their academic life and the Student Time Planner is developed to help the students for the management of time and for the organization of all academic work like assignments and tasks like revision, reading, and the preparation of tests. Time management is playing a crucial role in the students' academic life. Apart from the academic work, students are very busy with other activities and the improved version helps the students to concentrate on their work on a weekly basis.



The developed version includes 4 users like super Admin, Individual Admin, Staff and Student. Super admin is a new user portal according to the client requirement. Super admin can add new institutes to the system and can also manage all users in the system. Individual admins can manage all individual institutes under them. They can also manage all staff and students under their institutes.

The improved version includes the assignments and tasks graph on a weekly basis so that they can view, manage all other activities and assignments on a weekly basis. Staff can also add assignments on a weekly basis.

A weekly basis graph is more useful for the students to manage their work. The team used the best suitable process Open Unified Process for the development of this project.

Open UP process mainly focuses on each phase of the project.

It has four phases for the development of the project life cycle they are Inception, Elaboration, Construction, and Transition.

In the Inception phase we formed the team, assigned roles for the members, team meetings, project plan, and proposal.

The elaboration phase was the major part of analysing the requirements using ER diagrams and design submission to the client.

The construction phase was the biggest phase where the system was be built on the basement laid in the Elaboration phase and also testing was done to meet the requirements.

The transition was the final phase where the developed system was handed over to the Client.

2. TITLE

STP-Student Time Planner

3. AUTHORS

The project team includes four members who are pursuing their graduate diploma in Information Technology.

Women of Influence with Opinions

Ascend Mobile Application

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ABSTRACT

The Women of Influence with Opinions Project was designed to create a mobile application, predominantly for smart phones, that enables viewers to watch short influential videos made by women in a range of business industries of New Zealand

Keywords: Women of Influence, Opinions, Ascend, Mobile Application, Influential videos

1. OVERVIEW

There is an alarmingly low number of women in high-level positions in New Zealand's business industry and workforce. This needs to change. We need all available productivity in the workforce to ensure that our economy remains stable.

It is known that women re-entering the workforce after starting families are not able to do so as easily as anticipated. Being employed empowers them to keep improving for their families.

Young women who are about to leave secondary school and enter into the workforce are an audience that plays a major role in making this much needed change.

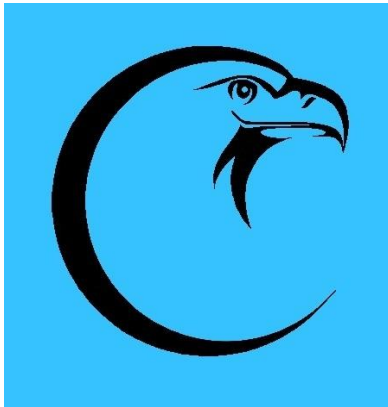


Fig 1 Women of Influence with Opinions – Ascend Application Icon

Women, of all ages, ethnicities and cultural backgrounds need more role models and influential women to look up to and aspire to be.

This has flow-on effects within the New Zealand economy in regard to less benefits being dispersed, more income flow, creating economic growth. It is also important to inspire young women to want to get into a career.

The purpose of this project is to create a means of distributing videos on mobile devices.

The videos being used by this application will be short and inspirational videos that feature women in positions of power and influence who have a wide range of opinions that have been shaped by their life experience. The videos are accessible through mobile devices and video hosts via shared link.

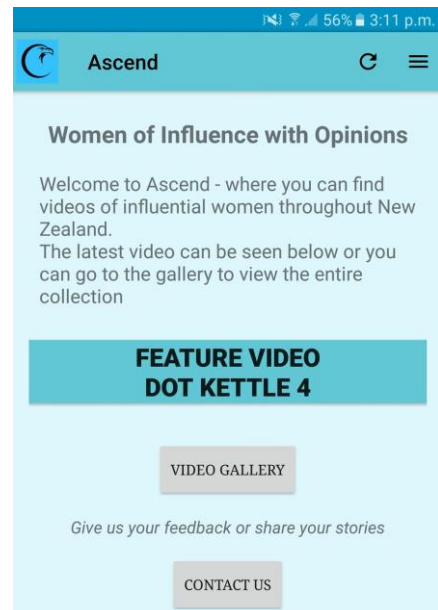


Fig 2 Women of Influence with Opinions – Ascend Application Home Page

2. TITLE

Women of Influence with Opinions

3. AUTHORS

The project team consisted of three undergraduate students completing a Bachelor of Information Technology degree.

