Digital Attendance System (DAS) Project

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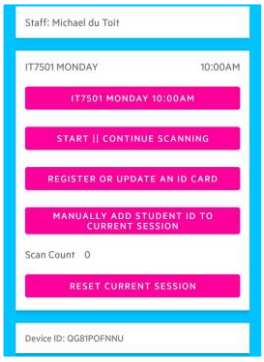
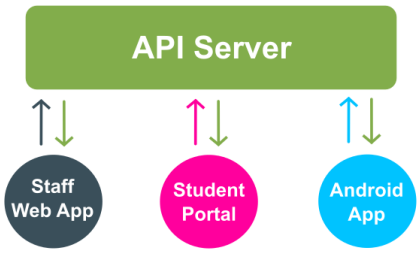
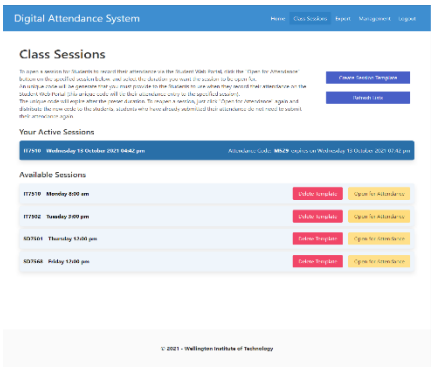


Mobile Application Staff View



DAS System Architecture



Web Interface for Portal Management

INTRODUCTION

The Digital Attendance System (DAS) is a digital solution to an internal business process of collecting and recording attendance of students at the Wellington Institute of Technology. The team had noticed repeatedly over their time at the institute how tedious and time-consuming collecting attendance at classes was for Staff. The project was undertaken with WelTec staff member Robert Sutcliffe as the client.

With information from the client, the team devised a digital solution for recording attendance at classes in a less tedious way for staff. Attendance is collected through an Android application or online web portal with an easy-to-use export feature which would format the collected data into a CSV format that is compatible with the import feature of the institute's current attendance system.

DEVELOPMENT

The system was structured around four sub-systems that comprised the overall system. The central component to the system was a headless .NET Core-based API Server with a SQL database. This was complemented with Angular Web Applications for staff members to access and export the data, along with a web portal for students to record their attendance at lab sessions. An Android Application further complemented this by using Student IDs and the mobile's NFC reader to record attendance and had an offline-first approach to enable the application to be used offline seamlessly and sync its changes when it came back online.

We used Kanban for our project methodology, as it provided us with flexibility and allowed us to shift to any urgent tasks at any time with minimal time loss and helped the team to stay focused and engaged.

We had a few struggles throughout development due Covid-19 changing the alert levels, one of our team members being absent twice due to family emergencies, and implementation of certain features taking longer than initially expected. Despite this we managed to keep development moving forward and implemented features with methods, concepts, and libraries we had never used before.

CONCLUSION

The team accomplished delivering a product that fulfilled the digitisation of the attendance collecting and recording process, along with exporting it in a compatible format.

The team gave their best efforts during this project, and despite setbacks, lockdown and temporarily missing a team member, they are proud of what they achieved.