Initial Plan

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Project Title - Property Management System

Project Description

The aim of this project is to create a system that will assist residential and commercial property managers with their managerial tasks and supply dynamic information to the occupier of residential buildings. The end product will consist of three applications; an online web app and two mobile applications. The first mobile app will be a companion app and the other will be a notifications terminal (TV / Video monitor) .The online application will allow property managers to supply relevant information and up-to-the-minute notifications to specified terminals.

Each terminal app will be uniquely identified and secure to temperament, to ensure data integrity. Terminals will distribute information to individuals on site. Such information can include on site problems such as lift breakdown, parcel collection calls and fire alarm testing schedules. It can be later expanded to include custom advertisement between notifications or up-to-date news and local traffic information.

The companion app will allow property managers to login and control many aspects of the web applications. One main feature that was requested by the client was an automated key tracking capabilities. This will require setting up on the web app.

Consider the following scenario. A property specialist hires a contractor to fix a plumbing problem. This particular problem requires inspection in multiple places within the building; therefore they would need a master key to access those areas. Normally, a pin code would be emailed to the contractor and they must have the pin available in order to retrieve the master

key. Once they complete their task, sometimes they might forget or lose their keys. This can cause major problems for the property managers

The task of identifying and getting into contact with the individual who had taken the master key can be taxing. In order to track this, the app will work in conjunction with an electronic key cabinet and can distribute pins and track the time when each key is removed and returned to the cabinet. Once a key had been returned a prompt from the contractor would notify the property manager of this.

A possible further app for use by property managers is a fire alarm testing app whereby building caretakers, site staff complete daily, weekly or monthly fire alarm tests and complete a form within the app that confirms that the test has been done on that day and at that time. This information is needed by the property manager to ensure that each building is tested regularly from a health and safety perspective.

Project Aims and Objectives

The goal of the project is to create an application that can broadcast information to terminals at various geographical locations. I will develop on Android platform, as it is the most prominent mobile OS. Considering TV manufacturers recent push for Android enabled TVs, there are many resources available for implementing an Android TV app.

Core Aims:
- **Secure Data Transmission** - Create a web application that can connect to each terminal and broadcast notifications to them. The data transmission between them should be secure, as interception of pin codes or modification of information could lead to disastrous consequences.
- **GPS** - Each terminal must be able to identify its location and notify the web application of its availability to receive notifications. Therefore, TVs or video monitors must be able to connect to the internet in someway, in order to receive said notifications.
- **Weather and Traffic Information** - If time permits I will try and integrate weather or traffic information to each GPS enabled terminal. Providing useful information to residents on site.
- **Creating an Professional UI** - Creating a user friendly intuitive user interface that can complete tasks with minimal efforts, considering the application's audience. I will use Fluid UI or other prototyping tools to mock-up designs for my mobile applications.

Sub Aims:
- **Producing Clean Code** - I will be using Github as my source control system. It's branching feature means that I will always have a working version to show my supervisors. Additionally, experiments with new features will be isolated from the main system, separating what is and isn't working.

- **Universal Mobile Application** - Considering the pool of Android enabled devices. My application should be able to adapt to various screen dimensions, processing power and firmware versions.
- **Network options** - The mobile application should able to determine the best available connection and switch to it. This will minimize packet loss and speed up of the loading time of demanding contents.
- **Optimal performance** - All applications should be working at peak performance, in terms of leading time, submitting and retrieving of data.

Work Plan

As agreed by my supervisor I will meet with him every week on Tuesday at 4:00pm, in order to discuss my progress and any issues that I had encountered the previous week. These meetings will help me focus on objectives and tasks that I had set out in the work plan.

Week	Tasks
1	- Finalise initial report - Begin background research on relevant libraries and developer kits - Free APIs for Weather and traffic information - Securing data transmission - Web frameworks - Databases
2	- Finish background research - Setup Git repositories for 3 separate applications - Setup initial development environments - Design user interfaces for - Web app - Notification terminal - Companion app
3	- Setup database for storing user credentials, terminal details and other data structures. - Create basic web app that can broadcast notifications - Implement basic layout for web app - Implement login feature on web app - Implement user area for configuring terminal contents.
4	- Fix errors or bugs - Implement basic layout for terminal app - Implement notification feature for terminal app - Using GPS establish its location and identity
5	- Fix errors or bugs - Continue working on the terminal app

	● Create dummy data for tests ● Implement weather and traffic and weather information ● Develop basic tests for Android terminal app ● Develop basic tests for Web application ● Continue working on current features
6	● Fix errors or bugs ● Secure the data transmission between web app and mobile client, via webhooks. ● Add preferences for network options ● Create pin generation feature for web app
7	● Refactor code ● Fix errors or bugs ● Create companion app that allow users to login ● Companion app should be able to receive pin codes
8	● Refactor code ● Fix errors or bugs ● Automate the email process to property managers ● Work on layout consistency between the three applications
9	● Refactor code ● Fix errors or bugs ● Develop advance tests for Android terminal app ● Develop advance tests for Web application ● If there is enough time, add fire alarm testing feature to the application
10	● Put finishing touches on the code base ● Begin final report
11	● Work on the final report ● Complete a draft version of the final report
12	● Put finishing touches on the final report ● Final report hand in