IT Carlow
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Design Brief

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Contents

1 Introduction

In this document, I will decompose my project vision into the major parts that should be completed to give the desired product. I will describe the design of my system and describe how it works and detail the challenges that I foresee.

2 Motion Sensor Camera configuration

The Sensors and camera should be configured in a way that allows for the user to have a reasonable view scope for the motion sensor to be triggered. All sensitive modules and the raspberry PI should be protected with the use of a case to prevent accidental damage. I have no concerns with the motion sensor and camera besides them being delayed in shipping or being dead on arrival.

3 IP Camera

The IP camera needs to be within range of the same wireless network that the Raspberry PI is connected to. The IP camera needs to be placed in a suitable spot to allow for maximum view and that has a power outlet to keep it powered at all times. The IP camera should be able to stream a HTML broadcast which the Raspberry PI should be able to view and process. The stream should be viewable in VLC and VLC should work in conjunction with the Motion software. Motion should then detect changes in the broadcast and take screenshots when it does so. If VLC does not work, I will try use other programs that are compatible with the Raspberry PI and motion or I will use a different type of IP camera technology that then might work with VLC.

4 Android User Application

This application should include a plethora of security features to ensure that the information being stored remains private. It should be easy to use and contain a secure login feature as well as an administration account for the issuing of commands such as turning off the security system. It should have a standard user account on which

the admin can assign permissions. It should allow for the sorting of the footage with the date and time of the footage as the primary key. My biggest concern with this aspect is the time it may take to produce this feature. I have very limited knowledge of coding in Android Studio and from my research, I can see that it can get quite complex, especially when you want to implement security features like I want to. Another concern I have is that the language that I would want to use for developing this app would be Java which is a language that I have not utilised often since 2019. This will cost extra time as I will need to refresh myself on the language. With time constraints being the biggest factor in my head, going the route of creating my own dedicated application may prove too ambitious.

5 The database

The database that I will have to use will be SQLlite as this is the best for phone application and after my research, it looks like this is the only viable one that will work with the raspberry PI and android. Some concerns I have with this is that there is no GUI for SQLlite on the raspberry PI so I will have to learn how to construct the tables and other necessary aspects of the database through the CLI. As of now, I have no experience using SQLlite so learning it as I proceed may take up extra time which I am worried about. Another concern is that I need both the application and the database to be fully functional and to work in tandem for the project as a whole to be functional. If one feature does not work with SQLlite or Android studio then the functionality of the project may be in jeopardy which then may prove to be a waste of time.