Software and Hardware Requirement Specification

For

DigitalDashboard

Version 1.0 in progress

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Transportation Mount

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.8.1 Database and work breakdown

For our database we will be using the Firebase Real-time database. After some research it seems the Raspberry Pi and the mobile phone can both utilize Firebase and can be connected to move data around. Karan will be handling setting up the required entities from both mobile and the Raspberry Pi device to the database. Zhill will be making sure that the communication of data between the Raspberry Pi and the mobile application is working and that the data is stored in the database. Darren will be creating and modifying the FM radio (online/offline) functionality and hardware connectivity (TEA5767+amplifier connecting to our database and respond to CRUD operations accordingly). As well, a built in MP3 player; all to be used in conjunction with the LCD application.

1.8.2 Application and work breakdown

For our mobile application we will be working with Android Studio version 3.3. There will be 3 major components of creating the app. First one being creating a clean layout for the UI and having an aesthetically pleasing icon. The second component being the logic working correctly and having a mobile device communicating with the Raspberry Pi. Lastly getting the mobile device to push and pull data from or to the database. Karan

will be handling database creation and the implementation in the application source code. Zhill will be handling some of the functionality of the application, for example, making sure the application will show the data that it got from the sensors. Darren will be handling loading online radio streams when available, and receiving, displaying and saving all local radio stations on the FM band; as well, loading potential MP3's for the users' device directly to the application.

1.8.3 Hardware and work breakdown

For setting up our hardware we are going to need a practical sized enclosure for our devices which still holds its purpose of being a portable screen, also we need to attach everything together to get it all to function correctly. We are also required to create the GUI and program on the Raspberry Pi to get our application to work. Karan will be working on the enclosure and the program. Zhill will be working on the hardware portion of the sensors, making sure that it will be able fit inside the enclosure properly. Darren will testing the prototype at each stage of development and also assisting Zhill in fabricating a new PCB with all three sensors and necessary accessories (antenna, AUX port, speakers, etc.) integrated together into a single component.

1.9 References

7. Appendix A: Glossary

8. Appendix B: Analysis Models

9. Appendix C: Calculations