Design and Implement a Weather Station

Report Name	Requirements Brief
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Module	CS39440
Degree Scheme	G400 (Computer Science)
Date	February 29, 2016
Revision	1.0
Status	Release

1 Introduction

1.1 Document Purpose

This document aims to provide a brief on the project requirements for the Design and Implement a Weather Station Major Project. It should be taken into account with the project as a whole as described within the final report.

1.2 Scope

This requirements specification details the functionality that the software aims to produce in order to provide weather data to those that have an interest in it. It will describe what is roughly expected to be in the final product, however it is not part of the methodology but instead expresses the thinking that has been done at this stage.

1.3 Objectives

The objectives of this document are to:

- Detail the reason for this document
- Give a description of the project
- Identify the perspective of this project including the purpose and users
- Describe the functionality of the product

2 General Description

The aim of this particular project is to gather weather data such as wind speeds and temperatures and push that to a database before then onward to a web-based interface that users can interact with. This information will be retrieved via use of a micro-controller that is connected to a number of meteorological instruments. In order to display the data there will be a need for a database system to hold it.

One of the goals is to provide clear and detailed weather information by representing it in a web-based interface in a well presented manner. The web-site will contain features such as current measurements and graphs that show relative history. The project will also seek to provide a means by which users can receive a feed of the sensor data for their own use.

3 Specific Requirements

3.1 Hardware Requirements

- Micro-controller must be capable of receiving sensor information
- Set-up of temperature/humidity sensors
- Set-up of anemometer (wind sensor)
- Set-up of rain gauge
- Micro-controller must be able to connect to WiFi and send data to the appropriate location
- Server needs to be available to receive the information

3.2 Software Requirements

- Version control system to better manage the project
- Server configured to allow access from the micro-controller
- Database established to receive data
- Website created to pull data
- Website should be visually appealing and usable
- Website contains graphs/images to better represent the weather information
- Availability of the function to allow users to get a direct feed of the data
- Creation of a child friendly web-site representation to better educate them [Possible Extension]

3.3 User Requirements

This project establishes that the user in mind is one who is of reasonable competence with regards to this sort of weather information and that they will be wanting to see graphs and diagrams that detail this sort of data to their need. That is also why the project aims to provide a way in which they can directly determine this through their own means.

Anyhow no matter what the user it is important to represent data well so that it can be used to the best of its potential. This means design considerations must be taken to provide a good user interface.

There is also another user in mind and that is of people who may wish to extend or continue this work in the future. Therefore time must be taken to comment code correctly and document information so that it can be better maintained in the future.

Finally with the possible extension of a child friendly web-page that displays weather information, time would need to be taken to focus on their needs and wants from such an interface.

3.4 Design Issues

- Font choice, size and colours
- General layout of items
- Navigation throughout the webpage/s
- Specific details revolving around graphs such as amount of history to show
- Search queries and showing the result of them
- Disability considerations such as colours for those that are colour blind and text to speech programs
- Ease of use in setting up the direct-feed along with good explanations
- Extra features such as RSS Feeds and bookmarking
- Dynamic design to deal with the large mobile market and enable ubiquity