GrowBro

Software Requirement Specification

1. Introduction
    1.1. The GrowBro ™ is an environment monitoring device that monitors the cultivation of plants. The goal of this system is to provide a reliable and scalable solution capable~~to cover the bases~~ of supporting both home growers to grow centers. In addition to the main GrowBro ™, there will be a line of single-plant auxiliary wireless sensors that connect to the hub via B~~b~~luetooth LE.
2. Software Requirements
    2.1. GrowBro (Hub)
        2.1.1. WiFi Connectivity
            2.1.1.1. The software shall connect to the wireless network via IEEE 802.11 standard (WiFi)~~k.~~
            2.1.1.2. The software shall try to automatically reconnect after a wireless network drop.
            2.1.1.3. The software shall transmit~~send~~ data to the external user interfaces via a WiFi connection.~~.~~
            ~~2.1.1.3.~~2.1.1.4. The software shall receive data from the external user interfaces via a WiFi connection.
        2.1.2. Bluetooth Connectivity
            ~~2.1.2.~~2.1.2.1. The software shall be capable of transmitting data and commands to individual sensors via the Bluetooth LE protocol using the external user interface.
            2.1.2.2. The software shall be capable of ~~shall send messages to the sensors containing commands for them to wake up and take a reading.~~receiving messages from the sensors periodically containing telemetry data, status info, and more via the Bluetooth LE protocol.
            ~~2.1.2.1.~~2.1.2.3. The sensors will be paired with the GrowBro hub with a unique user specified ID prior to beginning standard operating procedure.
            ~~2.1.3.0. The software shall receive messages from sensors containing sensor data.~~
        ~~2.1.4.~~2.1.3. Functionality
            2.1.3.1. The software shall receive Bluetooth messages from the sensors containing telemetry data, status info, and more every five minutes. The external user interface retains the ability to modify this report interval as desired.
            2.1.3.2. The software shall implement the ability to transmit Bluetooth messages from the GrowBro hub to individual sensors at the request of the user via the external software interfaces.
            ~~2.1.4.1. The software shall receive sensor data every five minutes.~~

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~~2.1.4.2.~~ ~~Upon receipt of sensor data, the software shall push that data to the cloud.~~.

2.1.3.3. ~~The software shall send bluetooth messages to the sensors every five minutes.~~

~~2.1.4.3.~~

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2.2. Wireless Temperature/Humidity

2.2.1. Bluetooth Connectivity

2.2.1.1. The software run an internal periodic script that takes temperature and humidity readings on a user specified interval. The user retains the ability to change this interval.~~shall receive bluetooth messages from the main hub that contains information notifying the sensor to take a reading.~~

2.2.1.2. The software shall ~~send~~ relay back B~~b~~luetooth messages to the main hub that contains temperature and humidity ~~data in it.~~data.

2.2.2. Sensor Reading

2.2.2.1. The software shall read the temperature from the sensor.

2.2.2.2. The software shall read the humidity from the sensor.

2.3. Wireless Moisture Sensor

2.3.1. Bluetooth Connectivity

2.3.1.1. The software shall run an internal periodic script that takes temperature and humidity readings on a user specified interval. The user retains the ability to change this interval.

2.3.1.2. The software shall relay back Bluetooth messages to the main hub that contains moisture data.

~~2.4.0.0. The software shall receive bluetooth messages from the main hub that contains information notifying the sensor to take a reading.~~

~~2.5.0.0. The software shall send bluetooth messages to the main hub that contains temperature and humidity data in it.~~

~~2.6.~~2.4. Phone Application

~~2.6.1.~~2.4.1. Application Functionality

~~2.6.1.1.~~2.4.1.1. The software shall gather information from the cloud.

~~2.6.1.2.~~2.4.1.2. The software shall

~~2.6.2.~~2.4.2. GUI

~~2.6.2.1.~~2.4.2.1. Main Display

~~2.6.2.1.1.~~2.4.2.1.1. The software shall display temperature, humidity, and moisture sensor data as the main focal point.

~~2.6.2.2.~~2.4.2.2. Tabbed Interface

~~2.6.2.2.1.~~2.4.2.2.1. Settings

~~2.6.2.2.2.~~2.4.2.2.2. Connect/Disconnect

~~2.6.2.2.2.1.~~2.4.2.2.2.1. The software shall add a new B~~b~~luetooth device.

~~2.6.2.2.2.2.~~2.4.2.2.2.2. The software shall remove a B~~b~~luetooth device.

~~2.6.2.2.2.3.~~2.4.2.2.2.3. The software shall allow the user to specify a unique ID for each wireless Bluetooth sensor. A unique ID will be created if one is not provided by the user.

~~2.6.2.2.3.~~2.4.2.2.3. Charts

~~2.6.2.2.3.1.~~2.4.2.2.3.1. The software shall display 6 month, 1 month, 1 week, and 1 day options.

~~2.6.2.2.3.2.~~2.4.2.2.3.2. Upon selection of options, must query the database on the cloud for the data and neatly print a line chart.

~~2.6.2.2.4.~~2.4.2.2.4.

~~2.6.3.~~2.4.3. WiFi Connectivity

~~2.7.~~2.5. Website Interface

~~2.7.1.~~2.5.1. Application Functionality

~~2.7.2.~~2.5.2. GUI