THE UNIVERSITY OF BRITISH COLUMBIA

IoT Monitoring of Aquaponic and Hydroponic Food Production

USER MANUAL

UBC Electrical and Computer Engineering Capstone 121

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1 Change Log

The change log documents changes made to the document.

Table 1: Change Log of Document

Date	Author	Sections	Change
2021-01-23	CB	1.0 - 4.0	Creation of document skeleton

2 Introduction

This User Manual is designed to walk a person unfamiliar with wireless technology through the steps of setting up, using, and maintaining a monitoring and control system for their pre-existing aquaponic or hydroponic growing system.

3 Installation

3.1 Sensors

3.1.1 Temperature Sensor

The DS18B20 temperature sensor must be wired up correctly to the raspberry pi. This sensor utilizes the one-wire interface protocol. This is accomplished by connecting the red 5 V wire to pin 4, the black ground wire to Pin 6, and the orange data wire to pin 7. A 4.7 Ω resistor should be included between the data pin and 5V, acting as a pull-up resistor.

The one wire interface protocol should be enabled using the $sudoraspi - config$ menu, under the 3rd heading "Communication Protocols".

The temperature sensor can be examined in the raspberry pi configuration with the command $ls/sys/bus/w1/devices$. There you should see a device listed such as "$28 - 3c01b556d3de''$. The output is stored in a file called "$w1\_slave''$, and will be accessed automatically by the temperature polling script in the repository.

4 Operation

5 Maintenance