Faculty of Engineering & Applied Science

Design and Analysis of IoT Software Systems

SOFE4610 - dropTemp Project Progress Report

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Name	Student ID
Manreet Kaur	**100766207**
Ivan Bisol	**100701735**
Gutu Shiferaw	**100767090**

Sensing and Power

Component	Justification
DHT11	We decided to utilize the DHT11 as it is a low-cost temperature sensor that provides relatively accurate readings that strikes a good balance between cost and performance.

Data communication

Component	Justification
HC-05	Arduino Uno does not come with in-built bluetooth, hence we are using HC-05 bluetooth module that is acting as a bridge for the connection between the Arduino Uno and Raspberry Pi 4. This bluetooth module can switch modes between receiving and transmitting data.

Edge Computing

Component	Justification
Raspberry Pi 4	The Raspberry Pi is utilized as our far edge computer to collect and compile data received from the sensing device before periodically transmitting it to our Droplet for further analysis. While other Raspberry models may be more suitable for the task, the development team has decided to utilize the resources given to them.
Arduino Uno	The Arduino Uno is used to collect data using the DHT11 and encode it for transmission over BLE using the HC-05 to the Raspberry Pi. As with the Raspberry Pi, there may be more suitable Arduino models for the task.

Computing and analytics

Component	Justification
DigitalOcean Droplet	We chose to use DigitalOcean for cloud computing because that is what the development team is familiar with.
Django web server	Our web server will run on Django to both provide a website for users to interact with, as well as RESTful APIs that the system can use to receive data from the edge devices as well as serve it to the users.

Security

Component	Justification
Log-in portal	The log-in portal would help secure each user’s data and personalize

	the device to our users.