Task 3.2C – Create IFTTT Trigger

# Student ID: 219011171

# Name: Peter Stacey

## Q1. Describe how your system works in writing and clearly outline the following: the schematic of the circuit board (breadboard), the overall infrastructure of the various parts of the system, the IFTTT trigger mechanism, and the notification mechanism.

As described in the video linked below, my solution includes:

1. Light Dependent Resistor (LDR)
2. Calibration cycle for the intensity of direct sunlight, consisting of:
   1. LED light
   2. Push button as trigger

The circuit includes the LDR attached to the analog pins and the LED and Button attached to the digital pins (refer Figure 1):

Diagram

Description automatically generated

Figure : IFTTT Circuit

The LDR operates as an input device with pinMode set accordingly.

Since the intensity of sunlight hitting the Earth varies depending on the distance to the sun, the intensity of direct sunlight isn’t a constant value. It can be affected by:

1. Latitude on the Earth (ie. The equator is closer to the sun than the poles)
2. Time of day
3. Season of the year (ie. We are closer to the sun in Summer and further from the sun in Winter)

As a result, my approach includes a calibration cycle that allows the light intensity to be set when the device is turned on. It does this by taking readings once per second for 60 seconds and taking the lowest value recorded in that time. To calibrate the device, it is placed in direct sunlight and the button pressed.

On successful calibration, “Calibrated OK” is sent to the Light\_Status event.

When the intensity of the light exceeds the calibration value, the sensor is calibrated and sunlight has not already been sent, the device sends “Sun” to the Light\_Status event.

Inversely, when the light is less than the calibration value, the sensor is calibrated and was in sun, then the device sends “Shade” to the Lightatus event.

On ifttt.com, the Applet watches for the Light\_Status event being published by my device and then forwards the content of the data to clicksend.

On clicksend, the data is SMS’d to my phone.

## Q2. Create a repository named SIT210-Task3.2C-ParticleIFTTT on Github. Upload your code to the repository. Include the link to your repository there.

<https://github.com/pscompsci/SIT210_Embedded_Programming/tree/main/Task_3_2C>

## Q3. Produce a video demonstrating your solution. Provide the link in your submission.

<https://www.youtube.com/watch?v=lHctvKDgXhY>

## Q4: In less than two paragraphs, describe how you would test the system you have built?

There are 2 main components to test in this system:

1. The sensor is working
2. The event is detected by ifttt.com

To test the first, there are a couple of possibilities:

1. False positive reading when the sensor is not in direct sun
2. False negative reading when the sensor is in direct sun

To test this, we could use a high intensity artificial light to confirm that the sensor detects intense light and send a “Sun” signal. We could then also shield the sensor in a dark place (eg. in a closed hand) and confirm that “Shade” is then sent.

To independently test that ifttt.com detects the event, a test cycle could be added to the program to send Sun and Shade data to the Light\_Status event, or a manual event could be entered on the device console, and confirm through the ifttt.com applet activity that the events were received.