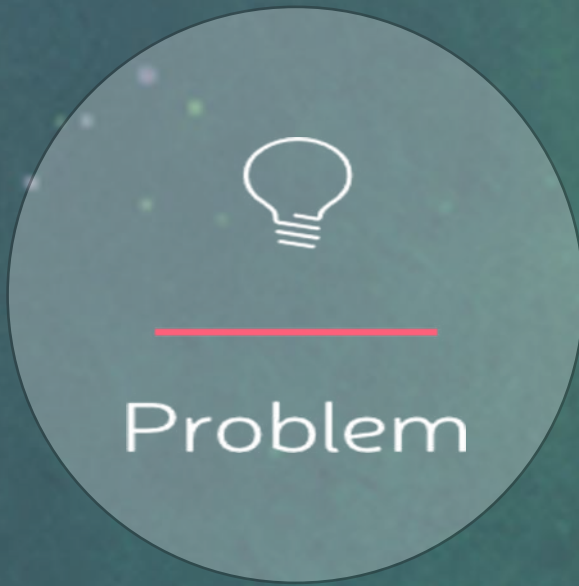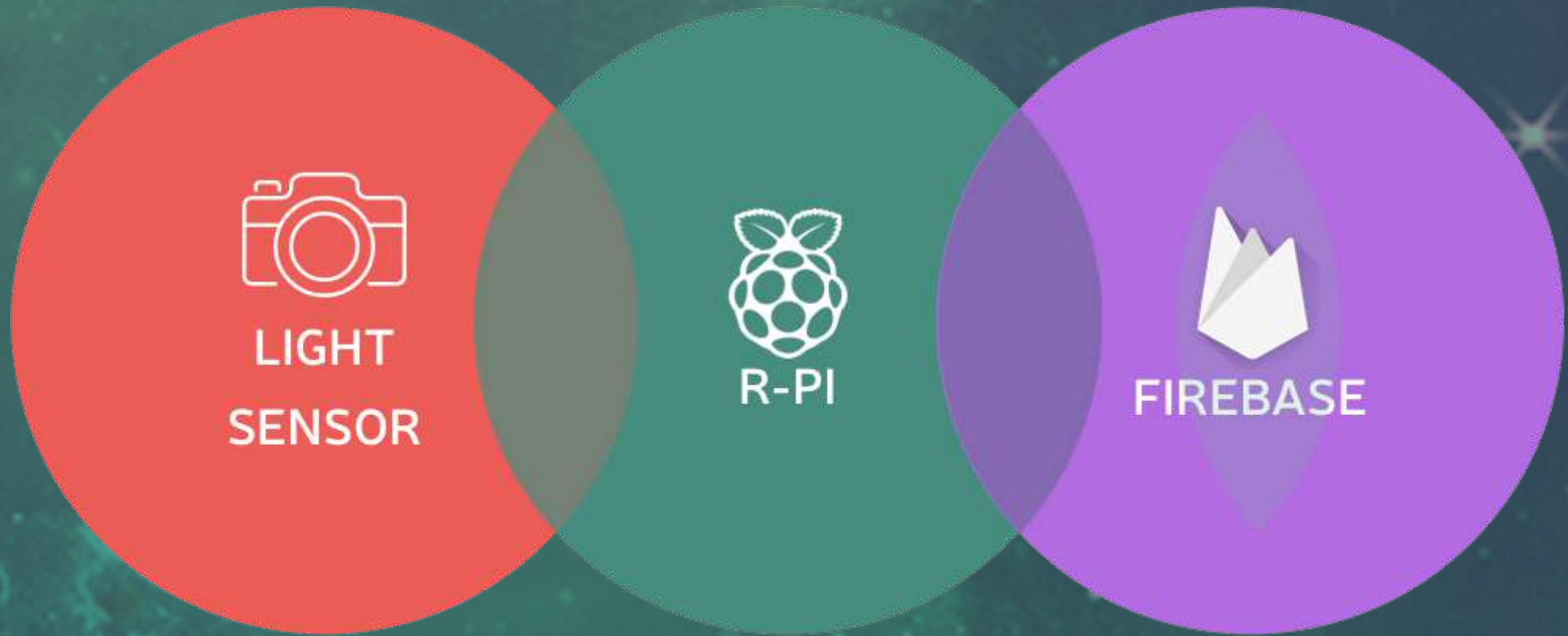# WASHR

3 main components simultaneously working together
to provide the user with the required information in real time

LIGHT SENSOR   **R-PI**   **FIREBASE**

Information delivered via KIVY GUI

Problem

As part of the SUTD family, we noticed a problem which has been faced by many students, especially those who are staying on campus in which time was unnecessarily wasted during the process of doing laundry. Hence, this poses a pressing issue in the daily lives of the students.

Solution

As our school is embarking on making the campus to be the playground of Smart Nation, as such, we came up with a solution to deal with the problem faced. We aim to design a program to enable users of the washing machine to get notification beforehand so as to decide the appropriate timings to do their laundry.

Return to Room

Walk Back to Lift

Check for Available Machines

Walk to Laundry Room

Unlock Main Door

Compiling Laundry

Lock Door

Walk to Lift

Wait for Lift

Take Lift Down

TOTAL TIME WASTED:
12 minutes

Check if Machine Cycle is in Use
Starts a timer for 37 minutes once the cycle starts

Upload to Firebase for Processing
Algorithm to determine if washing machine is available for next user

Determine if Washing Machine is Empty
Sensors to detect if state of washing machine reverts to initial conditions

EASE OF USE
User is able to see if there are any available and empty machines for use

KIVY GUI

SMART PREDICTION
Analyse obtained Data and advise user on best timing to do laundry with highest probability of available machine

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Workflow

Start

Base Weight Reading Recorded

Machine filled up

Machine Cycle Starts

'In Use' LED On

Photosensor Detects Light

Machine Cycle Ends

'In Use' LED Off

Laundry Removed

Photosensor Detects No Light

End

Components

Red light indicates:
Washing machine in use

Green light indicates:
Washing Machine is available

On click on this button:
Statistic of the usage of washing machine.
To provide users the best timings to do their laundry.
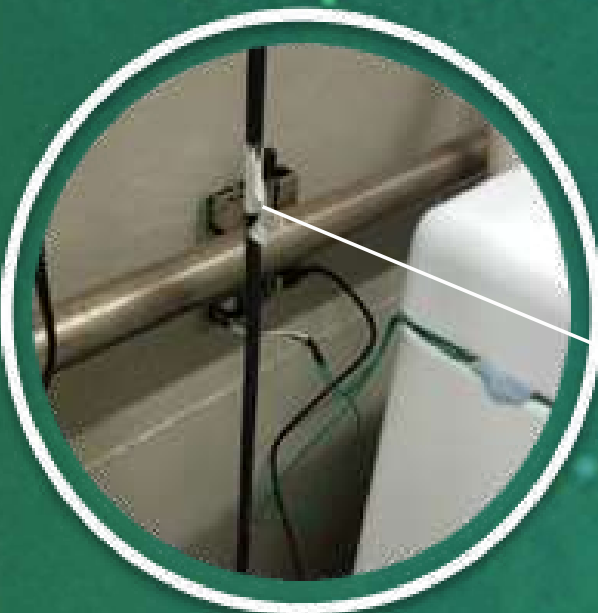
Block 59 usage information

Data Setup

A LDR was positioned and aligned to the LED of the washing machine.
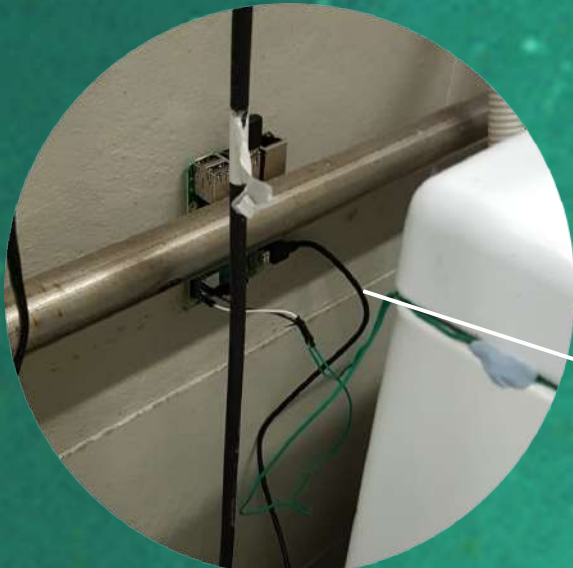
The wire was placed neatly along the side of the machine so as to prevent any misconnection.

The Raspberry Pi to collect the data of the usage and then uploaded to the firebase.

Future Works

Pressure Sensor

Due to budget constraints, we are unable to implement the pressure sensor as shown in the picture above. However, for future works, we hope to able to make use of a pressure sensor at the bottom of the washing machine so as to detect if any load is being placed into the machine. This will further enhance the reliability and accuracy of our program.