



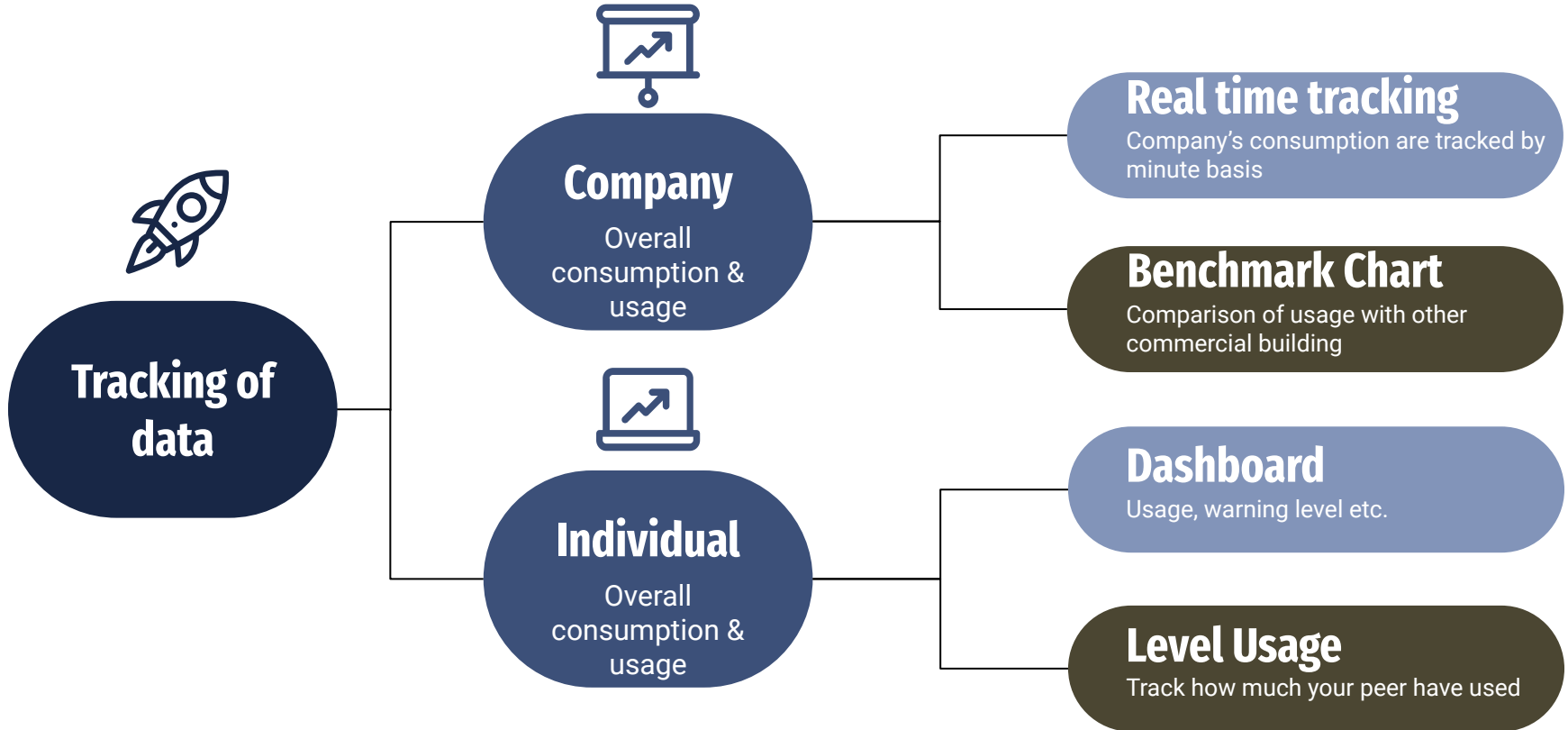
# Portal for Smart Building Energy Monitoring & Carbon Footprint

Website Link: <http://134.209.100.55:8000/>



Done By: Leo from CrazyImps

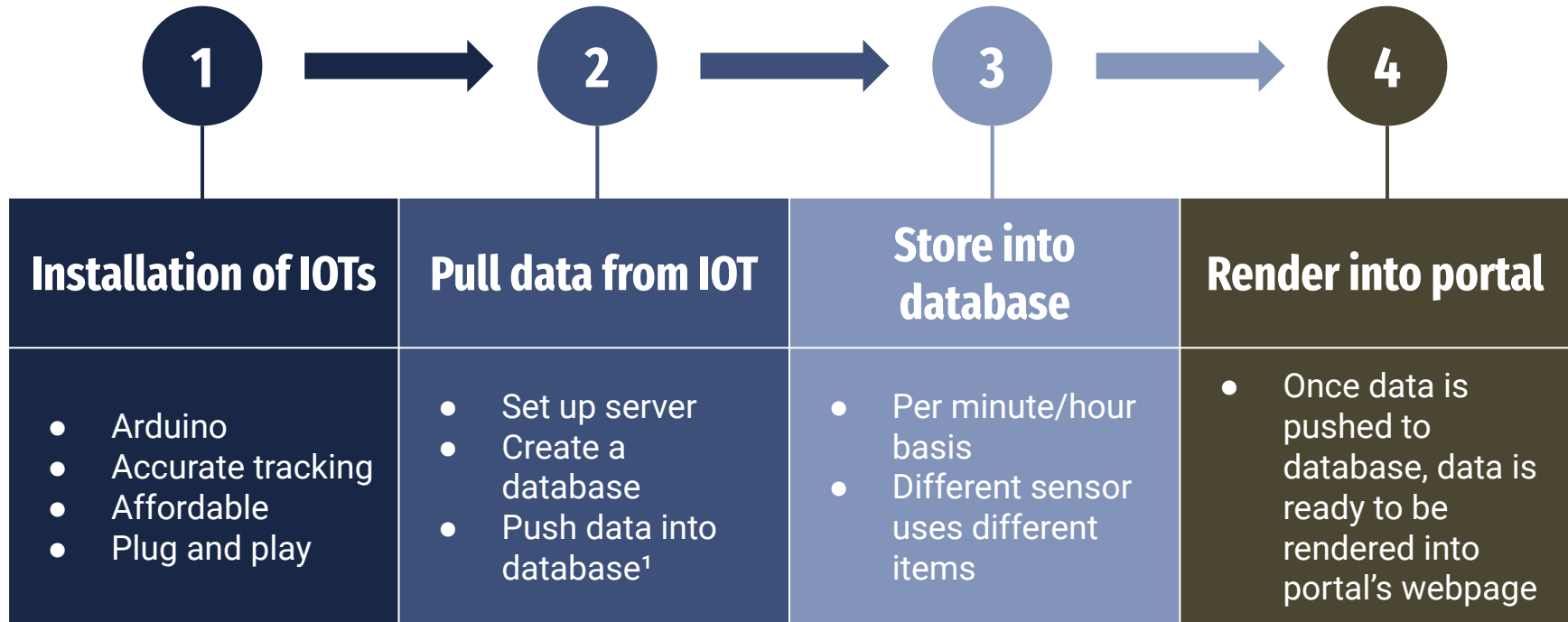
# Functionalities in short



# Problem



# What needs to be done



1. <https://create.arduino.cc/projecthub/muhammad-aqib/logging-data-to-database-using-arduino-ethernet-shield-3e9a0e>

[Dashboard](#)[Activity](#)[Employee](#)[Monitoring](#)

Logged in with Laptop

Leo  
Managing Director

## Personal Dashboard

### Last Week Report

#### Energy Consumption

**-30%**  
(356 kWh)

#### Power Consumption Target / mth

**1000 kWh**

#### Warning Level

**LOW**

### Resources Activity

| Resource       | Date              | Start Time | Run Time             | Location                 |
|----------------|-------------------|------------|----------------------|--------------------------|
| Aircon         | Fri, 8 Oct, 2021  | 10:45:23   | 1 hr 12 mins 30 sec  | West Gate @ Level 1      |
| Projector      | Fri, 8 Oct, 2021  | 09:13:27   | 6 hr 12 mins 30 sec  | Work Station 6 @ Level 5 |
| Monitor        | Fri, 8 Oct, 2021  | 18:23:34   | 8 hr 12 mins 30 sec  | Work Station 1 @ Level 2 |
| Aircon         | Fri, 8 Oct, 2021  | 23:11:21   | 18 hr 12 mins 30 sec | Work Station 4 @ Level 3 |
| Lighting Panel | Thur, 7 Oct, 2021 | 15:15:56   | 4 hr 12 mins 30 sec  | Common Area @ Level 1    |
| Projector      | Thur, 7 Oct, 2021 | 17:56:24   | 1 hr 12 mins 30 sec  | Meeting Room @ Level 2   |

### This week usage



### Employee's Status

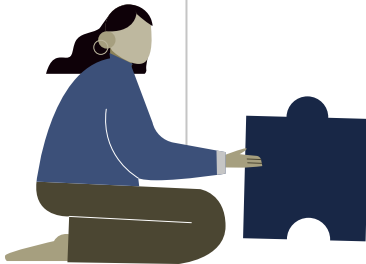
**Meeting Room**

As of Outlook Calendar\*

# How does it work?

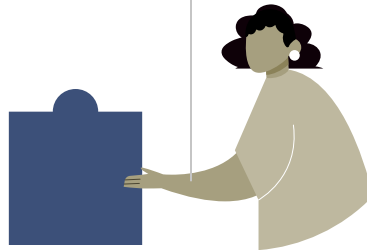
## IOTs all set up

Each resource eg. aircon must now be turned on using a staff pass.



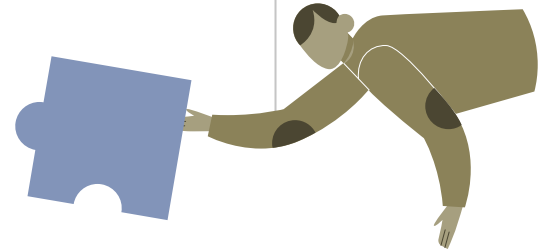
## Register to database

Arduino will now register the staff to it's own database, and track the usage of resource (aircon etc) by the staff ID.



## Real time push to portal

Every hour, Arduino will push the consumption data to the database, and warn staff if usage have exceeded





Dashboard

Activity

Employee

Monitoring

Logged in with Laptop



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Managing Director

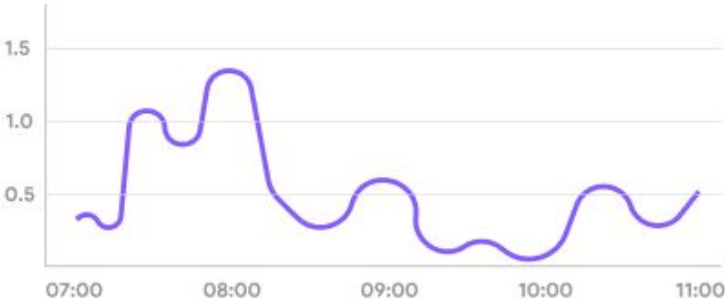
# Monitoring ● On Track

Filters

Building 1

Level 5

## Power Consumption



## Statistics

14

Staff Present

9

kWh Generated

3

Resources Running

30

Target kWh

3

Hours of usage

1

Resources Idling

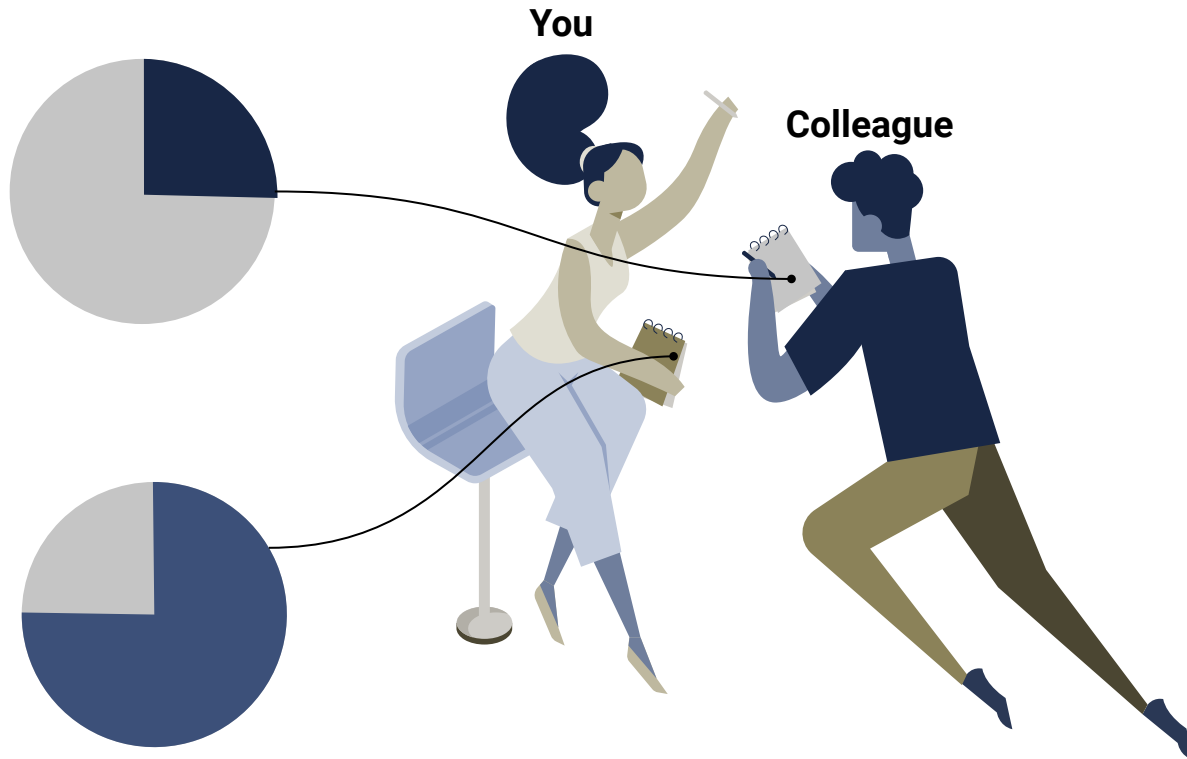
## Activity Log

| Time     | Person | Resource       | Usage Time          | Power   | Power Consumption |
|----------|--------|----------------|---------------------|---------|-------------------|
| 10:12:45 | Alan   | Aircon         | 1 hr 12 mins 30 sec | Running | 2.2 kWh           |
| 09:29:12 | Tommy  | Projector      | 1 hr 13 mins 39 sec | Running | 3.3 kWh           |
| 09:25:34 | Keat   | Monitor        | 0 hr 13 mins 34 sec | Idling  | 0.8 kWh           |
| 08:55:23 | Joshua | Aircon         | 0 hr 10 mins 14 sec | Stopped | 1.4 kWh           |
| 08:36:15 | Kelly  | Lighting Panel | 0 hr 12 mins 23 sec | Stopped | 1.3 kWh           |

# Tracking of usage by different levels in the building

**3 kWh**

How much your  
colleague have used



**10 kWh**

How much you have  
used





PSA Web Portal

[Dashboard](#)

**Activity**

[Employee](#)

[Monitoring](#)

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**Leo**  
Managing Director

## Real-time Activity Monitoring

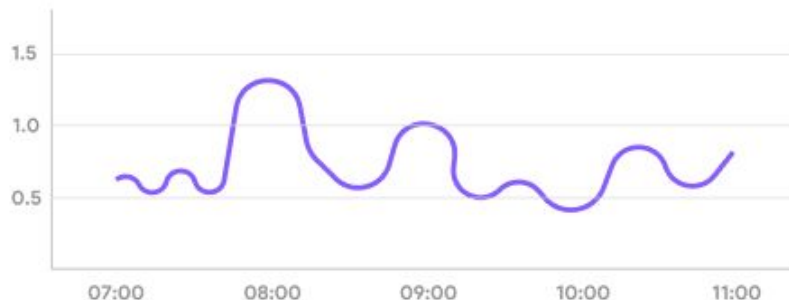
As of 8 Oct, Friday, 11:34

**2**





Resource In Use

**10<sup>▲</sup>**

kWh Generated



### Level 4 | Workers Energy Consumption

| Person  | Consumption | Run Time            |
|---|-------------|---------------------|
|  You     | 10 kWh      | 1 hr 20 mins 10 sec |
|  Amy     | 7 kWh       | 0 hr 54 mins 48 sec |
|  Josh    | 4 kWh       | 0 hr 25 mins 11 sec |
|  Kenneth | 2 kWh       | 0 hr 13 mins 46 sec |

### Level 4

Status: **On Target**

**150**

kWh as Target

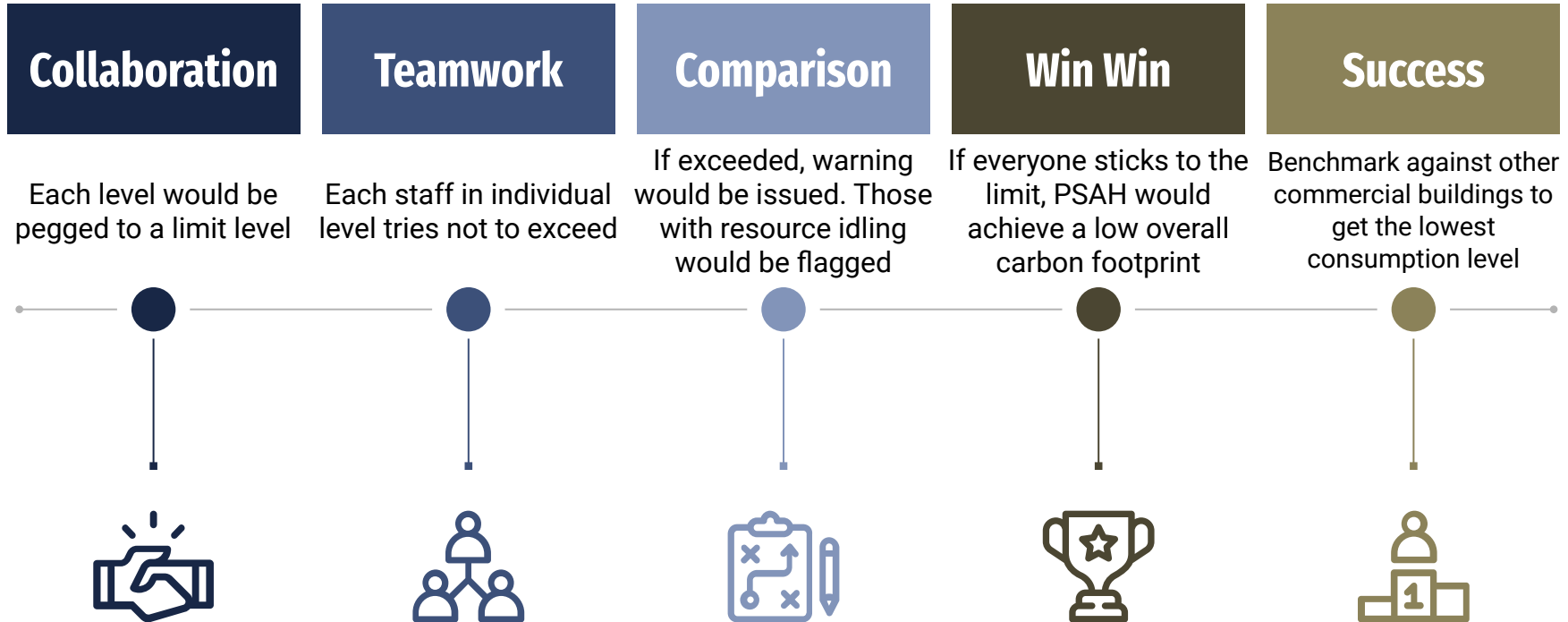
**23**

Total kWh  
Produced

**5.75**

Average kWh  
Produced

# The roadmap to minimal usage



# Executive Summary



## Real Time

### Data and Interaction

You would not know how much you have used if there is none.



## Past Data

### Records

### Resource Activity

Know what resource you have used over the past week or month.



Strategic  
Plan

## More IOTs

### Tracking usage

For eg. aircon usage along with staff ID would be pushed into database for references.



## Public

### Dashboard

Everyone would be able to see each other usage. PSA would be able to benchmark themselves to other commercial buildings.

