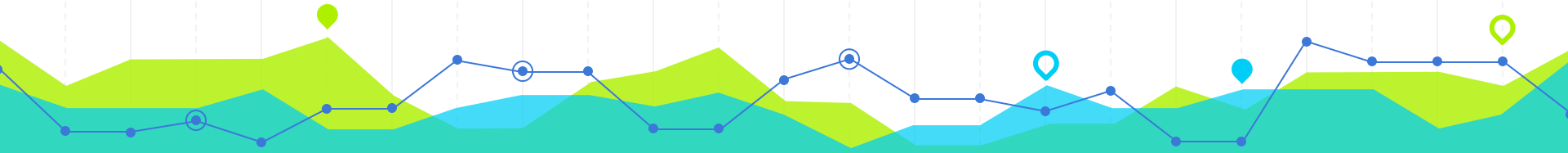
INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY
HYDERABAD



INTERNET OF THINGS AND SMART LAUNDRY

THE BIGGEST ENERGY CHALLENGES FACING HUMANITY

Energy is one of the most imperative aspects of country's technological progress. Efficient use of energy and its saving is essential for sustainable development.

Oil price inflation, growing competition for energy supplies and increasing global environmental issues have prompted the renewed interest of the private and public sector on energy.[McKinsey, 2015]

India is not a water deficit country but is reeling under water scarcity on account of severe neglect and lack of monitoring of water resources and development projects. [CWC, 2019]

RESOURCE MONITORING: AN INTRODUCTION

Resource Monitoring is an energy efficiency technique that helps us to measure power and water consumption, their usage patterns and trends with the aim of finding areas where we can reduce resource usage as well as cost.

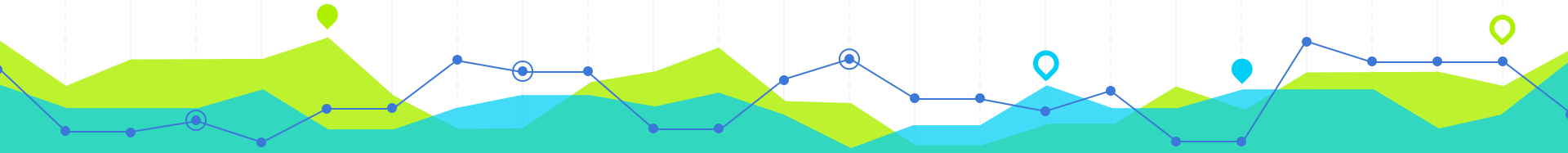
Automated power and water usage monitoring system proposes an effective way of controlling the wastage of resources at our place.

Bakul Nivas

Washing Machine

Organisation of the users of washing machine in Bakul Nivas, the boys' hostel, is currently a major problem . Moreover, the energy consumption of the machines is not accounted for. Hence, we propose an IoT solution for streamlining the scheduling process through an online record system as well as to monitor the resource usage.

September 15, 2019



Requirements

1

MAJOR TOOLS REQUIRED FOR THE STUDY

ESP32 System on Chip

Energy Meter with RS485 Communication Port

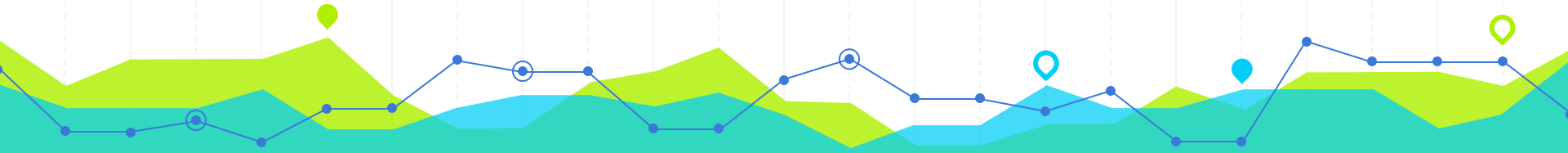
Flow Meter with RS485 Communication Port

Washing Machine Relay Switch

One M2M/WiFi for Data Transfer

Cloud IoT Platform

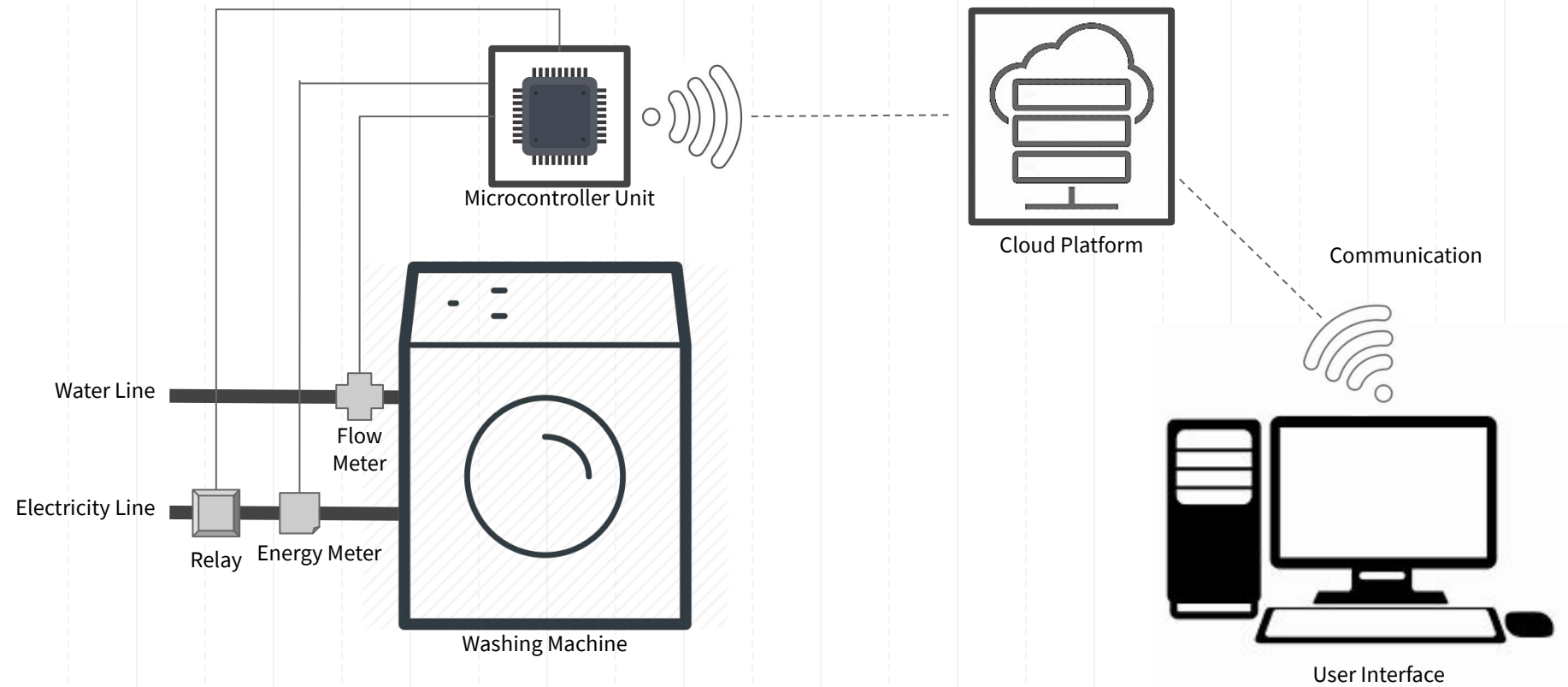
Web Application

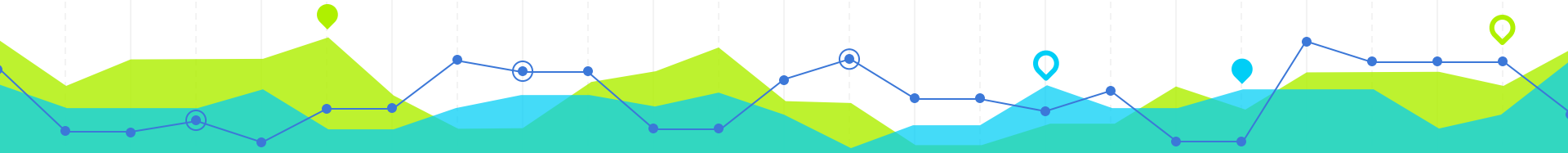


Schematic Diagram

2

Picture for representation purposes only.





Brief Report 3

INITIAL REPORT ON THE WORKING OF THE SYSTEM (I)

Flow meter and energy meter will be positioned on water inflow line and power line respectively of the washing machine. The RS485 communication protocol will be followed for data transfer from the meters to the ESP32 MCU. This data will be then pushed onto the cloud storage and will be used for analysis of resource management.

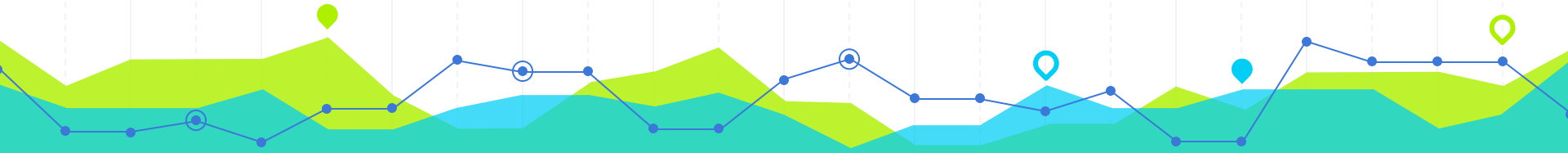
INITIAL REPORT ON THE WORKING OF THE SYSTEM (II)

A web application will be made available where people can see the real-time running status of the washing machine. Users may use the application as an online register for slot selection*.

The authorised user may request to access the machine at the allocated slot through an authentication gateway*.

After authentication, the relay switch on the power line of the machine allows the user to use it.

*The actual mechanism is yet to be decided



Expected Outcome 4

UTILIZATION OF THE USAGE DATA

Once the usage data is received and analyzed, that knowledge is exceedingly valuable. In the industry, usage data and telemetry data combined can make a difference to continuous engineering cycles when building the next version of a product.[IBM, 2016]

The data received from the flow meter and the energy meter will be used to find out the patterns and trends of energy and water consumption. It will help in making policy decisions regarding washing machines. Also, the online record will facilitate hassle free usage of the machines by the student community. We can analyze the students' usage pattern as well.

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THANKS!