Comprehensive Platform for the Internet of Things

SUMMER INTERNSHIP

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Submitted by:

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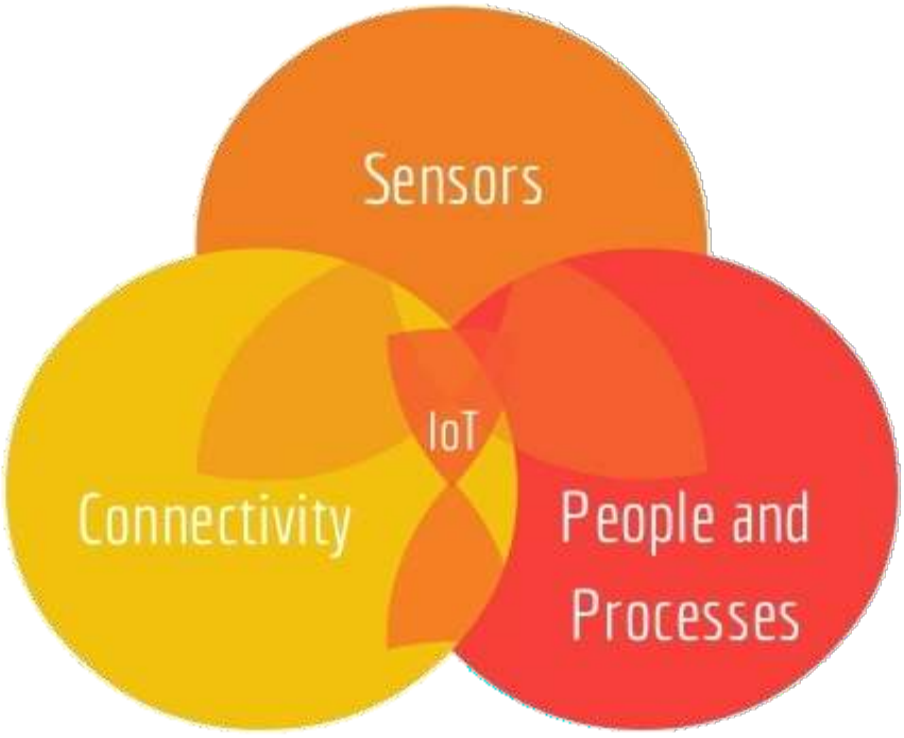
Internet of Things

The **Internet of Things** (**IoT**) is a network of physical objects—devices, vehicles, buildings and other items embedded with electronics, software, sensors, and network connectivity—that enables these objects to collect and exchange data.

It is also referred to as Machine to Machine(M2M),Skynet or Internet of Everything.

Components of IOT:



INTRODUCTION

As many IoT deployments consist of hundreds of thousands to millions of devices, it is essential to track, monitor, and manage connected device fleets. We need to ensure IoT devices work properly and securely after they have been deployed. You also need to secure access to your devices, monitor health, detect and remotely troubleshoot problems, and manage software and firmware updates.

Web IoT Device Management platform makes it easy to securely onboard, organize, monitor, and remotely manage IoT devices at scale. With the platform; IoT Device Management;

You can register your connected devices individually or in bulk, and easily manage permissions so that devices remain secure. You can also organize your devices, monitor and troubleshoot device functionality, query the state of any IoT device in your fleet.

Web IoT Device Management platform allows you to scale your fleets and reduce the cost and effort of managing large and diverse IoT device deployments as the data collected can be further subjected to machine learning and deep learning.

OBJECTIVE

To develop a web based platform service that allows end users to aggregate, visualize, and analyze live data streams in the cloud. You can send data to platform from your devices, create instant visualizations of live data, and send alerts using web services like Twilio®.

With Graphs analytics inside platform,you can write and execute preprocessing, visualizations, and analyses.

Platform envisions to enable engineers and scientists to prototype and build IoT systems without setting up servers or developing web software.

While the centralization of data will allow efficient management and exploitation of the data to develop more efficient and accurate product.

Existing System:

- Things Speak(https://thingspeak.com/)
- Google Cloud IoT core(https://cloud.google.com/iot-core/)
- AWS IoT Analystics(https://aws.amazon.com/iot-analytics/)

Under the proposed system:

1. User will sign in or sign up.

2. Then either he can add a sensor or view the existing sensors.

3. If he add then he will have to enter the corresponding parameters of the sensor(for example if he adds Accelerometer then he has to add parameters x-coordinate, y-coordinate, z-coordinate and time stamp.

4. If he views then he will be displayed the corresponding graph in real time .

Hardware and Software Specification:

Hardware:

->Sensors

Software:

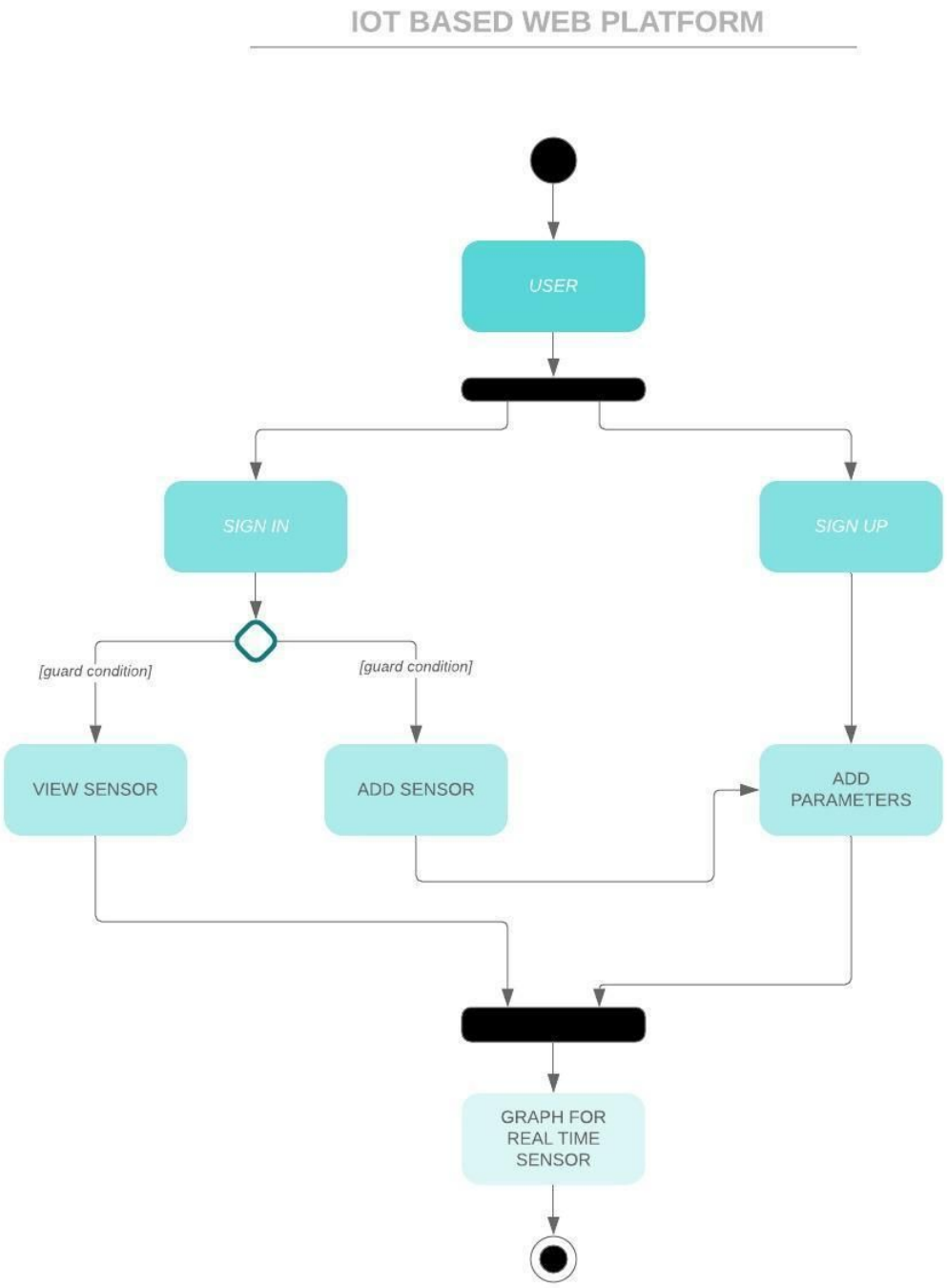
->Node.js

->Socket.js

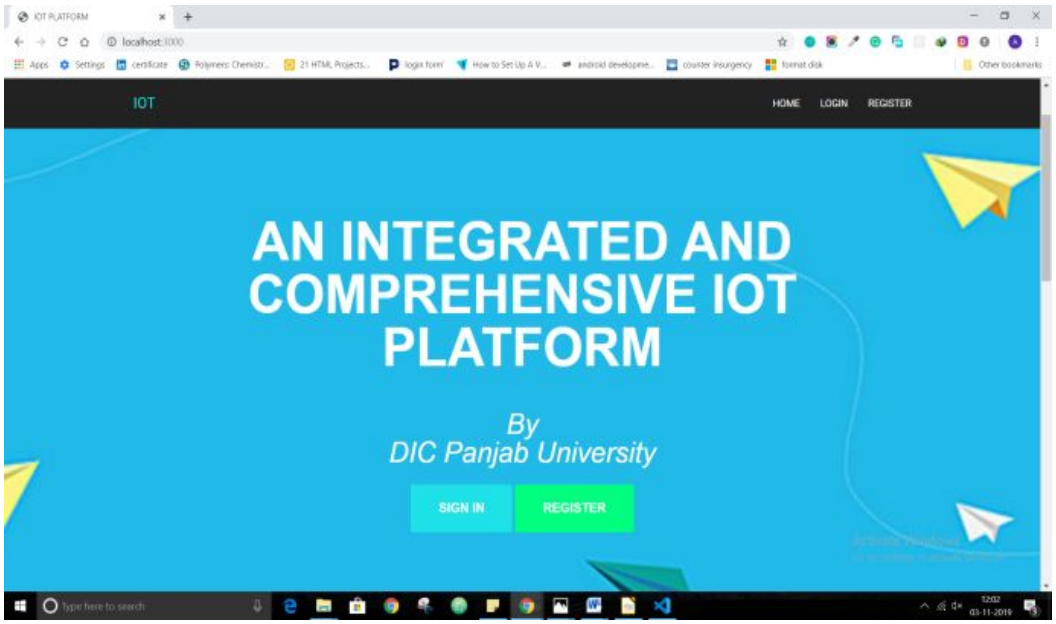
->React.js

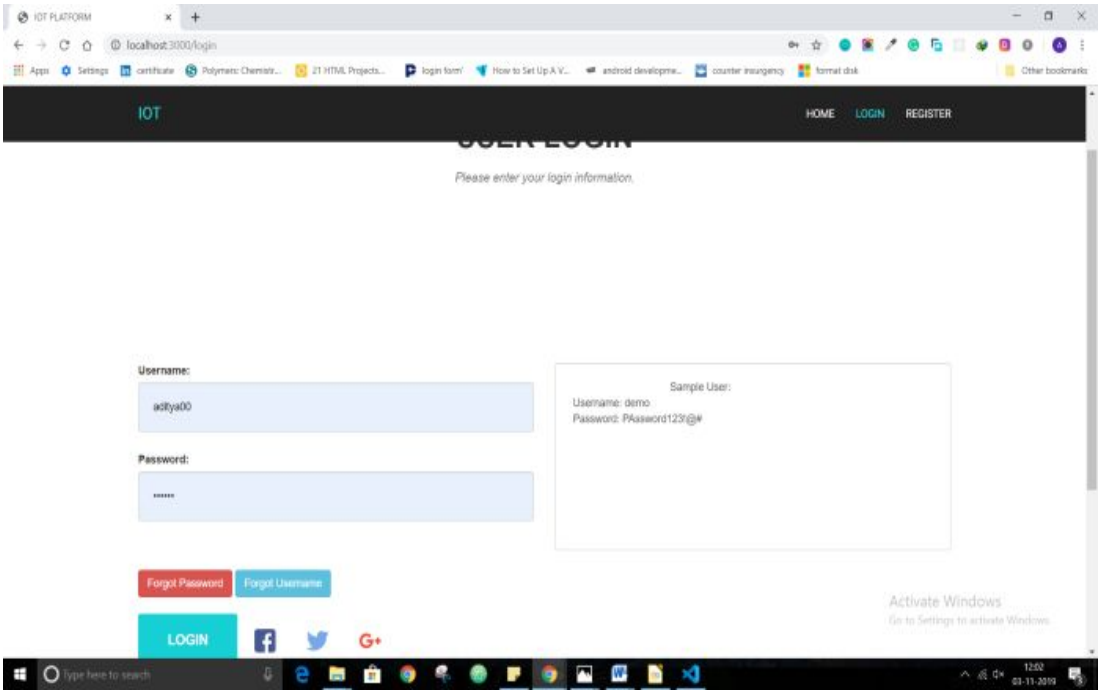
->Atom(IDE)

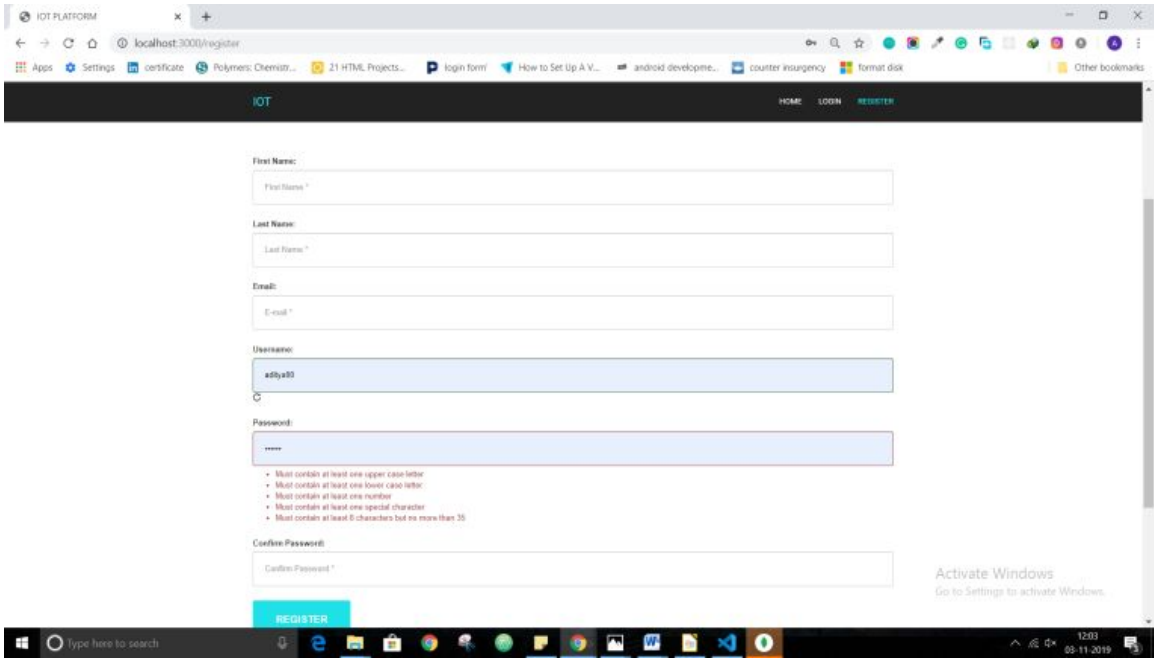
Detailed Flow Diagram:

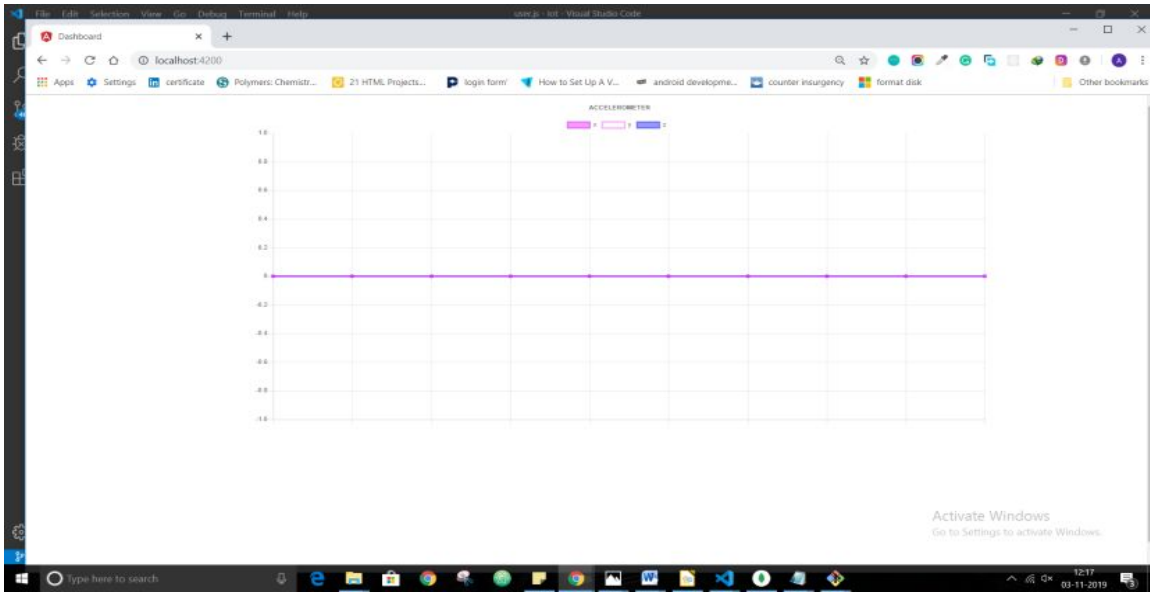


Screenshots of the Output:






IOT PLATFORM
localhost:3000/register
IOT
HOME
LOGIN
REGISTER
First Name:
Last Name:
Email:
Username:
adilya80
Password:
Must contain at least one upper case letter
Must contain at least one lower case letter
Must contain at least one number
Must contain at least one special character
Must contain at least 8 characters but no more than 35
Confirm Password:
REGISTER
Activate Windows
Go to Settings to activate Windows.
Type here to search
12:03
03-11-2019


Dashboard
localhost:4200
ACCELEROMETER
Activate Windows
Go to Settings to activate Windows.
Type here to search
12:17
03-11-2019

Conclusion

The IoT platforms market has experienced enormous growth in the last three years. These versatile technology software platforms are gaining in importance across many industries especially in industrial/manufacturing settings. IoT platforms are becoming crucial from an end-user point of view in the digital transformation of their businesses from once standalone products into smart connected solutions. It is becoming evident that choosing a platform provider is not an easy task. Customers have different approaches, however early stage pilots are key to success as well as choosing a vendor with a strong partner ecosystem.

The market overview: The report forecasts a compound annual growth rate (CAGR) for IoT platforms of 39% over the time frame of 2018-2023, with annual spending surpassing US$22bn by 2023. These numbers are based on the IoT platforms-related revenue of the leading companies in the field, across 11 industry segments – agriculture, connected buildings, connected car, energy, health, manufacturing, public services, retail, smart supply chain, transportation and other

Hence we aim to develop a platform to harness the economic,social and technological benefits of Internet Of Things.

FUTURE SCOPE:

End-user interactions with devices

- The end-user is going to play a major role in the IoT applications.
- Originator: A user triggers an event or query to the application.
- Recipient: A user is notified a final results by the application.
- Intermediary: A user is prompted as required.

Technological perspective:

- Inclusion of Machine learning would allow analytical overview of the data.
- Dynamic Graph plotting as per the sensor of the user is an important element as it generates more user friendly UI.

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