INTELLIGENT CARGO MANAGEMENT USING INTERNET OF THINGS

1. INTRODUCTION :

1.1 Overview:

In this project, we developed an intelligent cargo management system which sends alert notifications to authorities about abnormal atmospheric conditions.

1.2 Purpose:

As atmospheric conditions today are changing unpredictably due to human activities, which may impact many other activities. One such is goods storage which requires precise environmental conditions to avoid from getting spoiled. To serve such cases, we developed an intelligent cargo management system.

2. LITERATURE SURVEY :

2.1 Existing Problem:

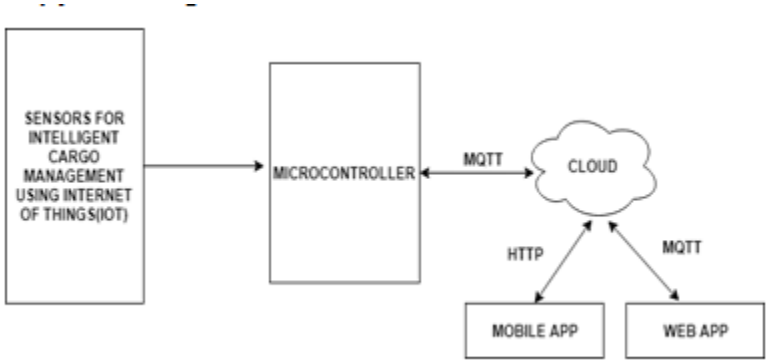
- Deviations from planned routes
- Changing the place of discharge in bills of lading
- Frustration of contracts
- Damage to cargo
- Payment of hire from time charters

2.2 Proposed Solutions:

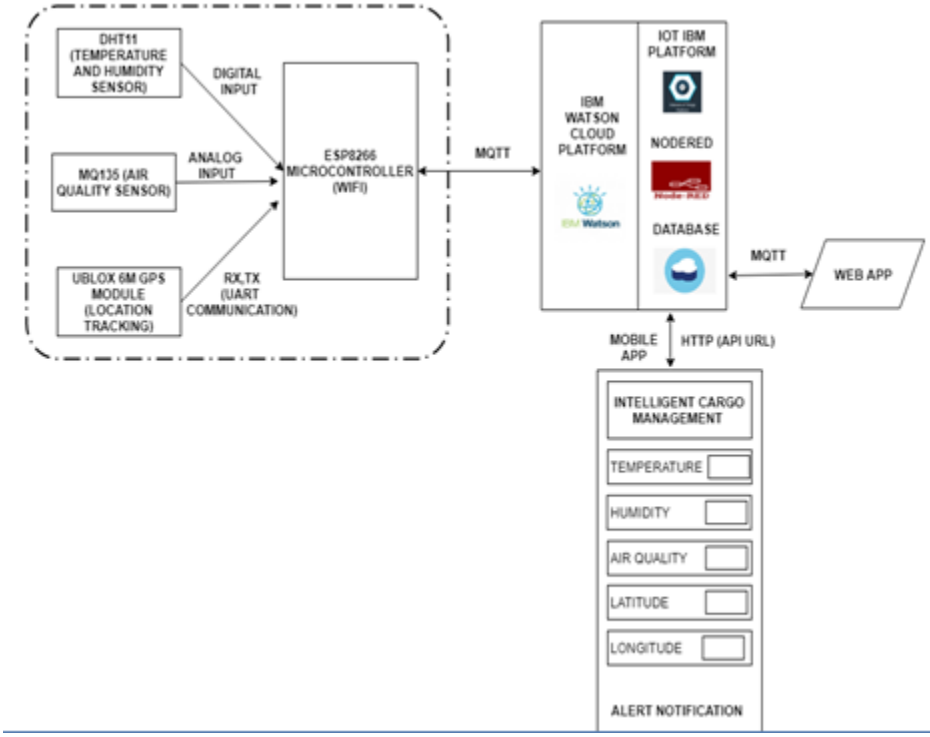
- Continuous monitoring of Cargo temperature, humidity, and air quality level.
- Alert is generated when freshness becomes low
- Trucks will be traced during the transition between the source and destination
- Admins will be notified whenever the truck reaches the destination.
- Less latency in communication from device to cloud using MQTT

3. THEORETICAL ANALYSIS:

3.1(a) Block Diagram



3.1(b) Technical Diagram



3.2 .Hardware/Software Designing:

- Hardware:

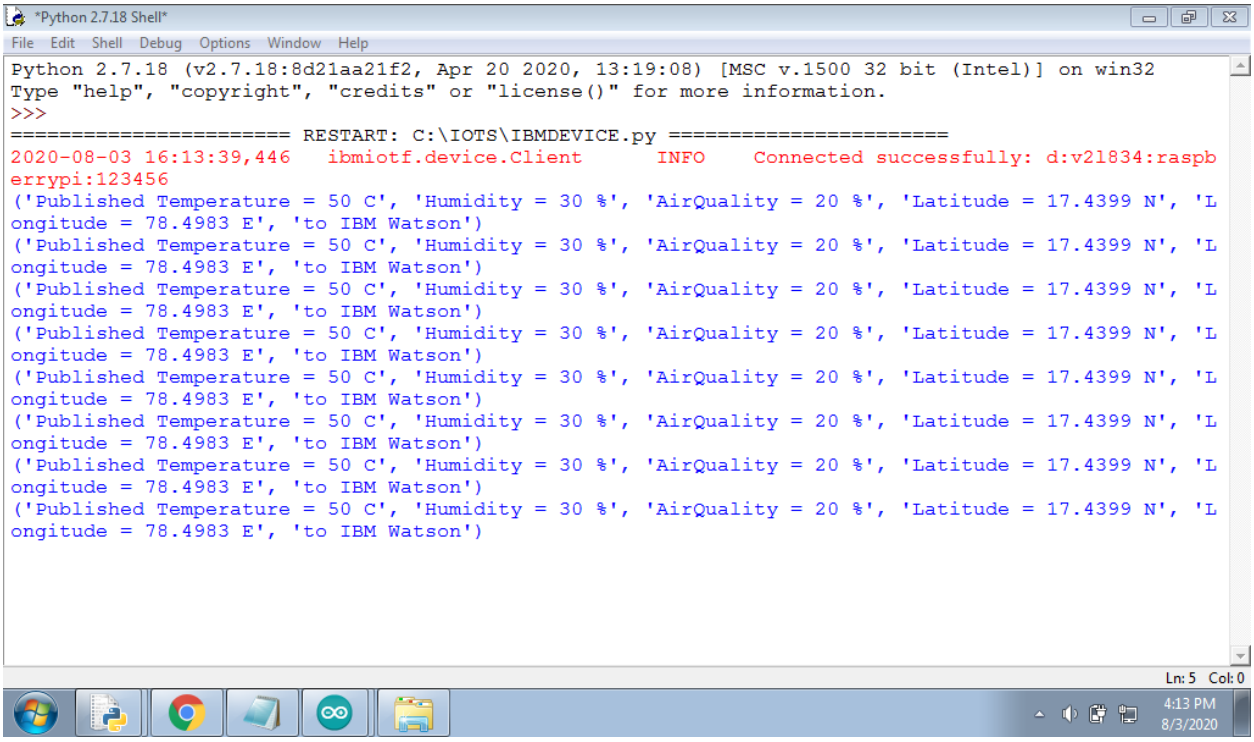
1. Nodemcu ESP8266
2. DHT11 - To measure the Temperature and Humidity
3. MQ135 Air Quality Sensor
4. UBLOX 6M GPS Module

- Software:

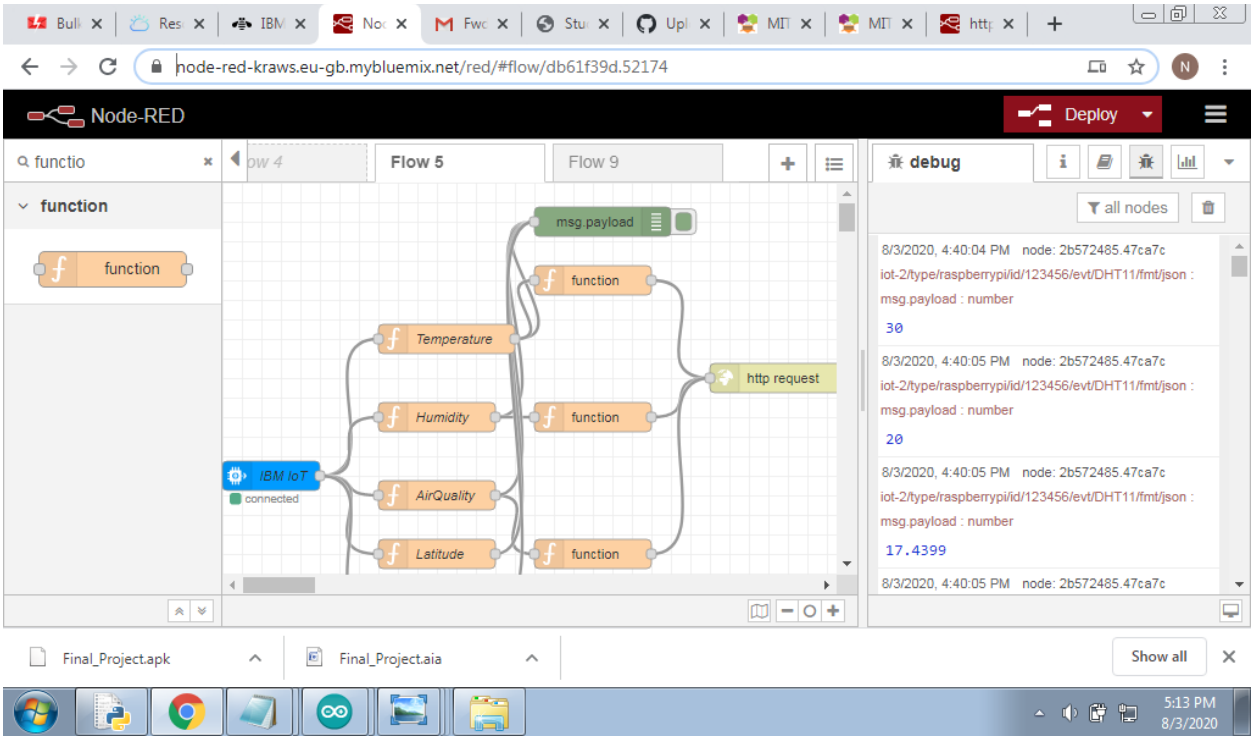
1. Arduino IDE
2. IBM cloud Account
3. IBM IoT Platform
4. NodeRed
5. MIT App Inventor

4. EXPERIMENTAL INVESTIGATIONS:

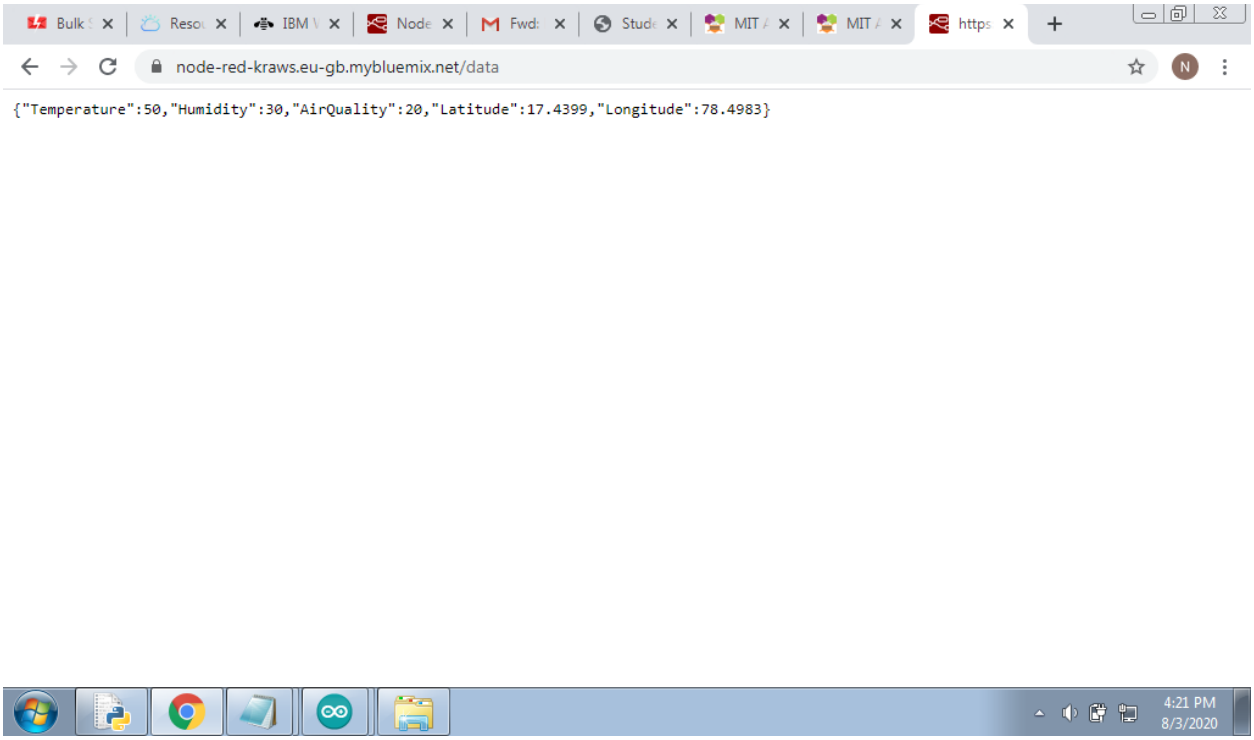
1. Testing output of Python code.



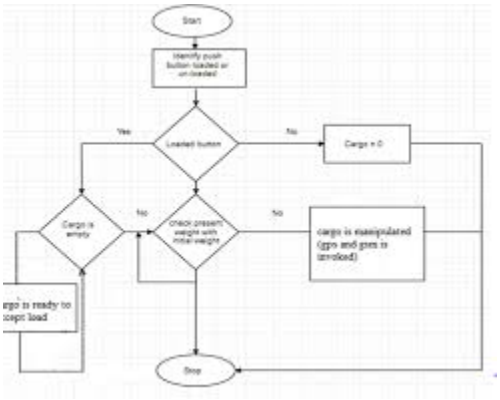
2.Testing Nodered output.



3.Testing output on html page

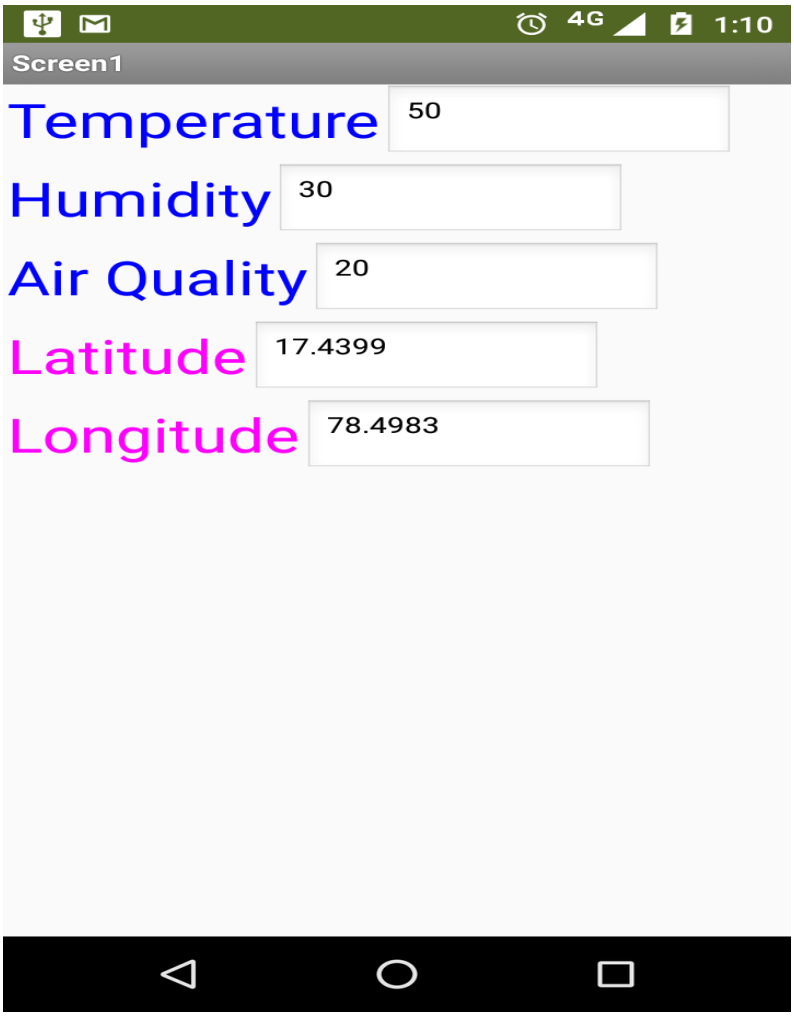


5.FLOW CHART:

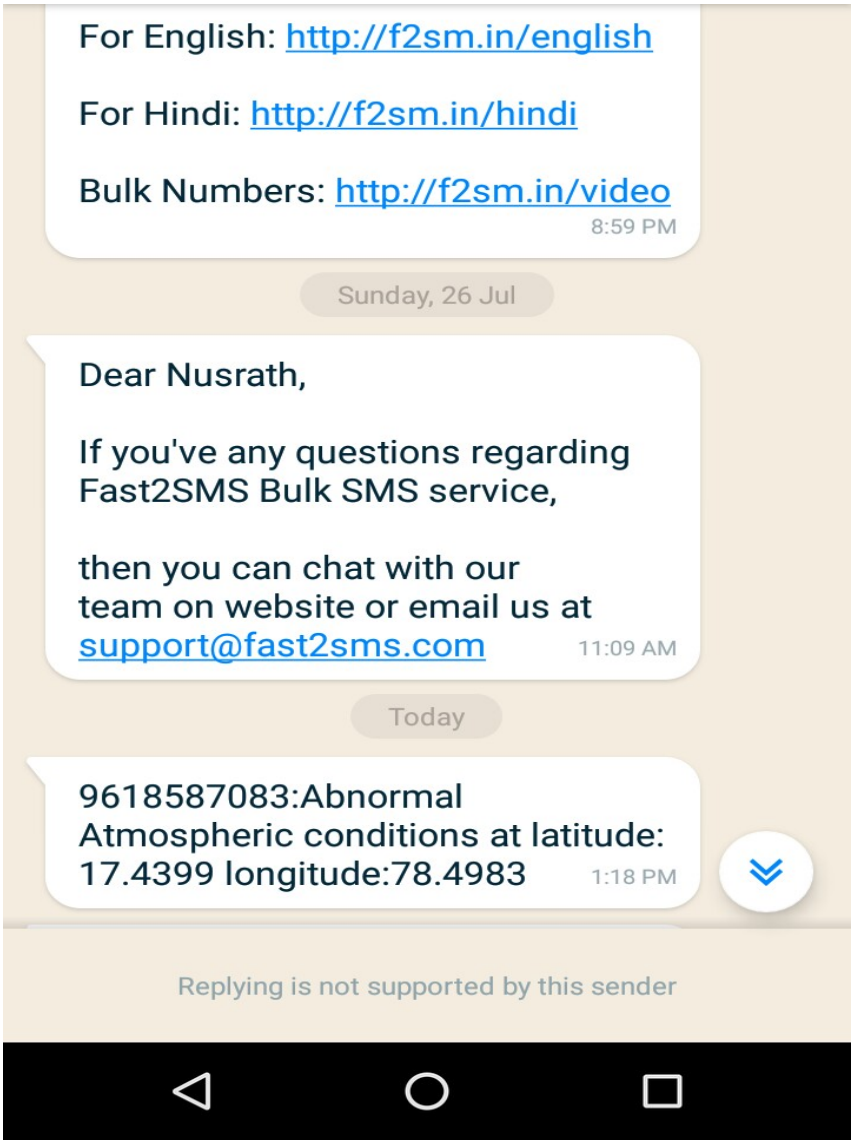


6. RESULTS:

1.Data received on Mobile application



2. Alert Notifications Received On Mobile Application.



7. ADVANTAGES & DISADVANTAGES:

- Advantages:

Manipulation of cargo can be easily tracked.

Cargo will be in surveillance during the transition between source and destination.

- Disadvantages:

Internet connectivity is mandatory

8.APPLICATIONS:

1. Used in Goods transportation over long distances through Waterways,Airways etc.

2. Used by many Logistics .

9. CONCLUSION:

In this project we have implemented an intelligent cargo system for efficient transportation of goods from a given source to destination. The sensors are simulated using the route map. The most preferential route is taken in order to effectively maintain the state of the product in the desirable state. Simulation is used to generate the trajectories of a route. The vehicles are tracked based on the GPS trajectories

10. FUTURE SCOPE:

As future work real time situations like traffic, truck breakdown and catastrophic effects can be considered in order to improve the results.

11. BIBLIOGRAPHY:

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