INTELLIGENT CARGO MANAGEMENT USING IOT

OVERVIEW & PURPOSE

This concept proposes an Internet of Things-based cargo monitoring system to monitor any environmental changes of sensitive products in order to ensure their functional quality throughout the entire cold chain operational environment, while also improving operational efficiency, maintenance strategy, balancing environmental change, and lowering electricity consumption.

EXISTING PROBLEM

To manage a general supply chain that handles environmentally sensitive products (ESPs), which necessitates the employment of specific refrigeration systems to control a certain range of storage conditions in a cold chain environment, such as temperature, humidity, and air quality level. As a result, an effective cargo monitoring system is required to prevent **product deterioration.**

PROPOSED SOLUTION

We need to have Continuous monitoring of Cargo temperature, humidity, and air quality level and send an SMS warning to a specified person if the freshness drops too low,

for ex: in case of temperature variation person should able to control it via mobile app then and there itself without any effort.

And also In order to ensure quicker and more efficient deliveries, an SMS-based system should be implemented, which alerts the designated person when the truck arrives at the intended location.

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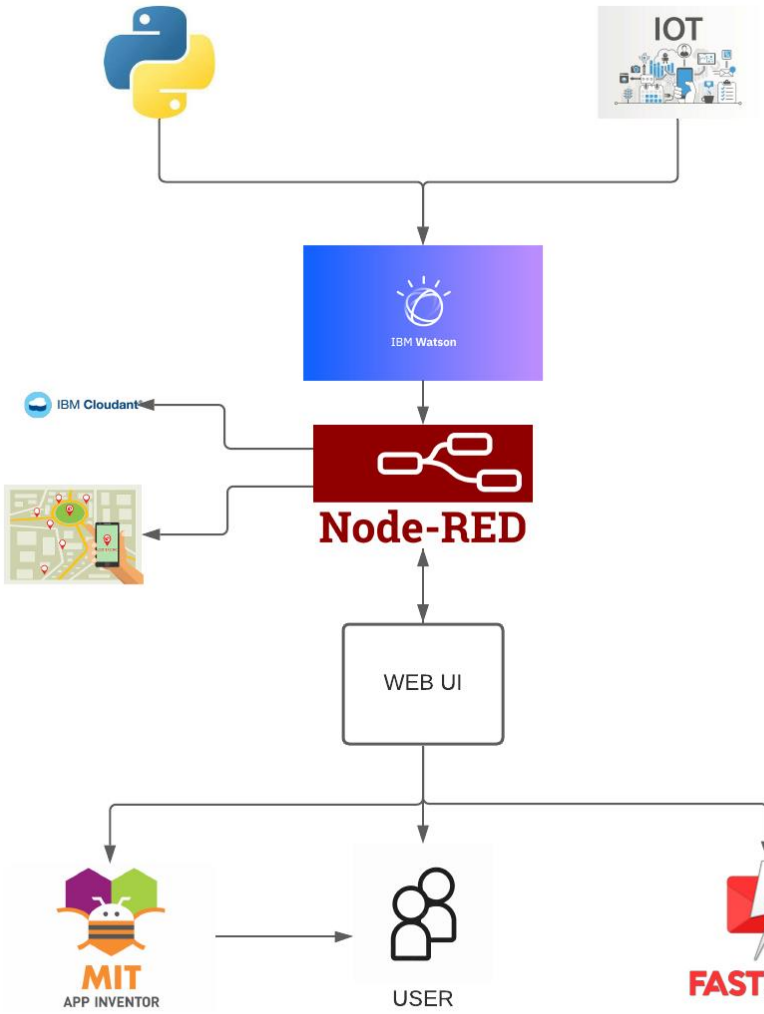

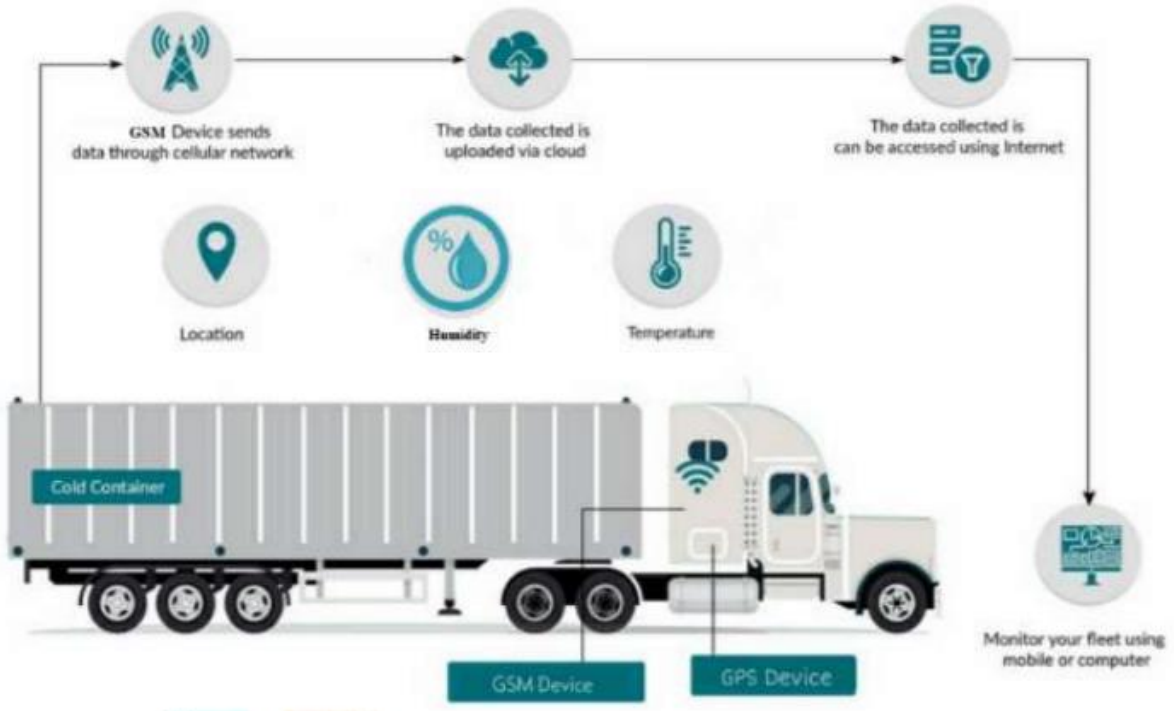

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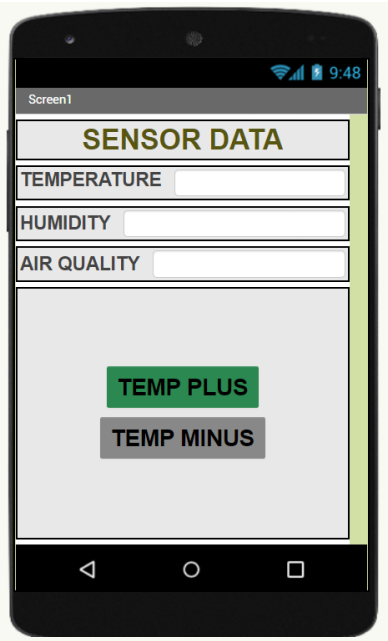
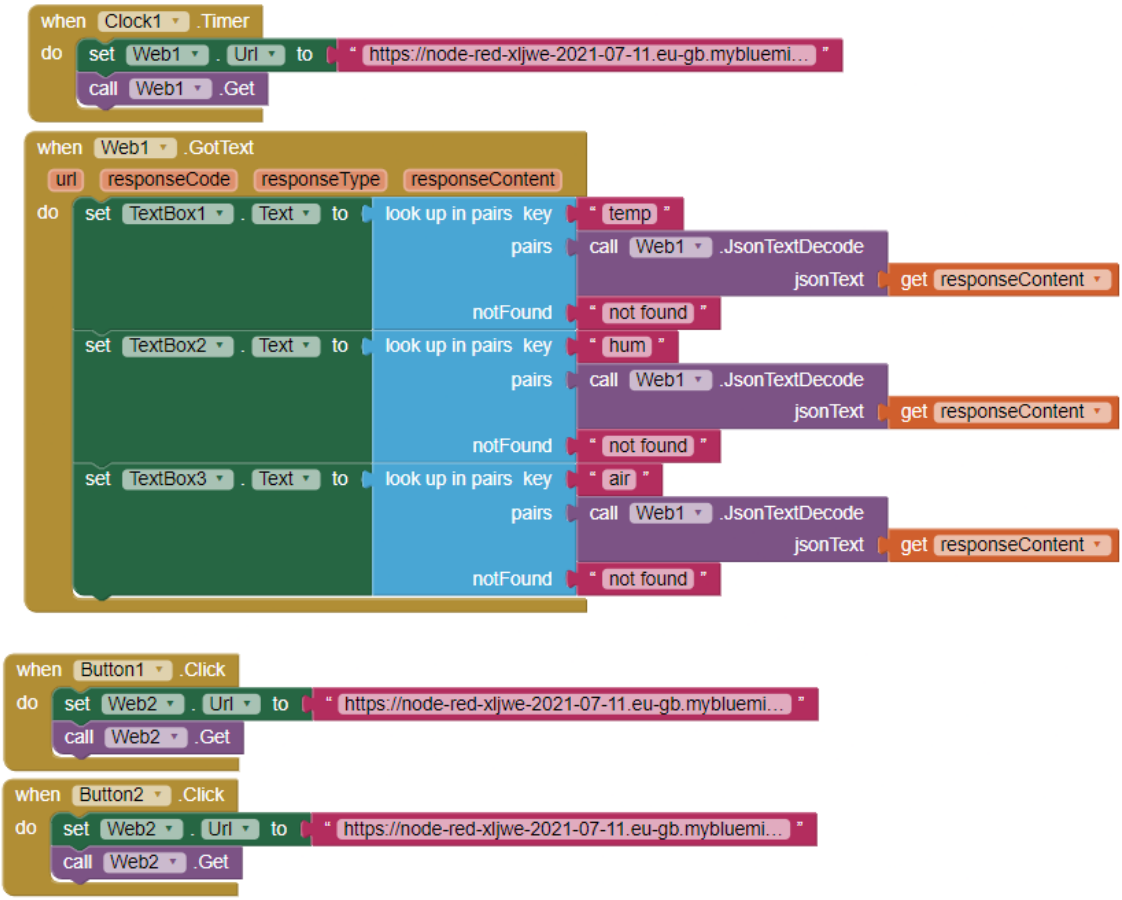
MIT APP DESIGN





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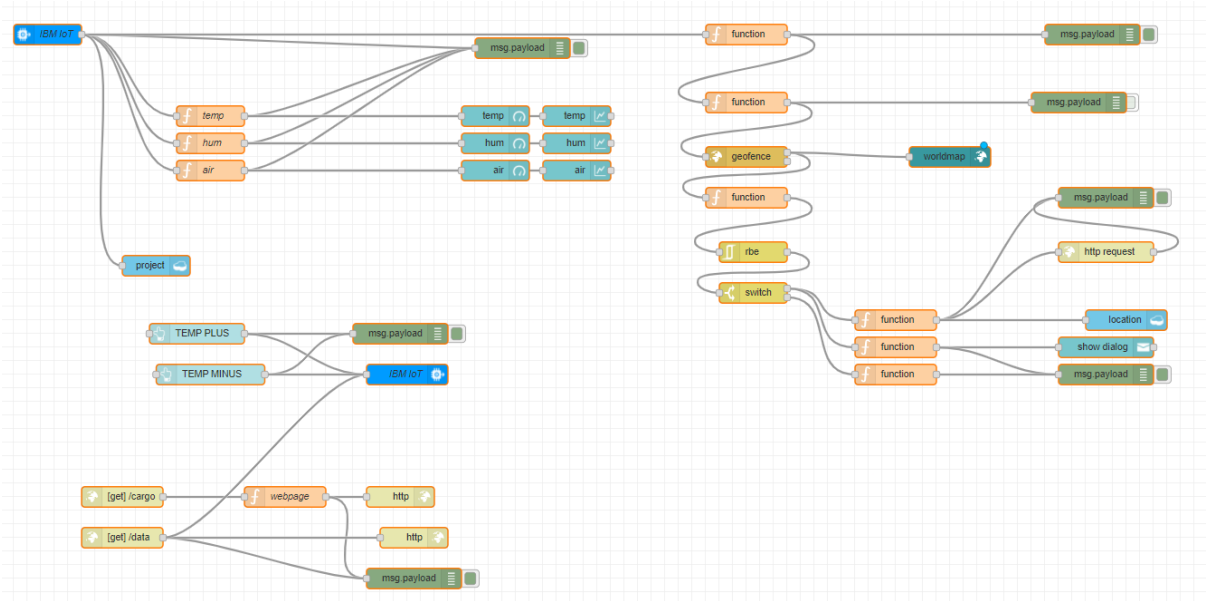
Node red flow



Experimental Investigation

This cargo tracking system could be implemented using RFID, 5G communication, AI technology. Where It can realize cargo tracking through real-time signal acquisition, data communication, and information processing. Dynamic road transport of the dangerous goods monitoring system can be proposed, which is based on IoT and RFID technology. This system can be cooperated with the highway infrastructure and information sharing system databases by cellular communication and can get more information about dangerous goods by information processing. Also, Warehousing management is becoming more complex and critical as business and technology continue to change.So, with IoT technologies, optimization of the utilization of warehouse space, and monitoring of the warehouse environment, and improvement of the product management process can be done.

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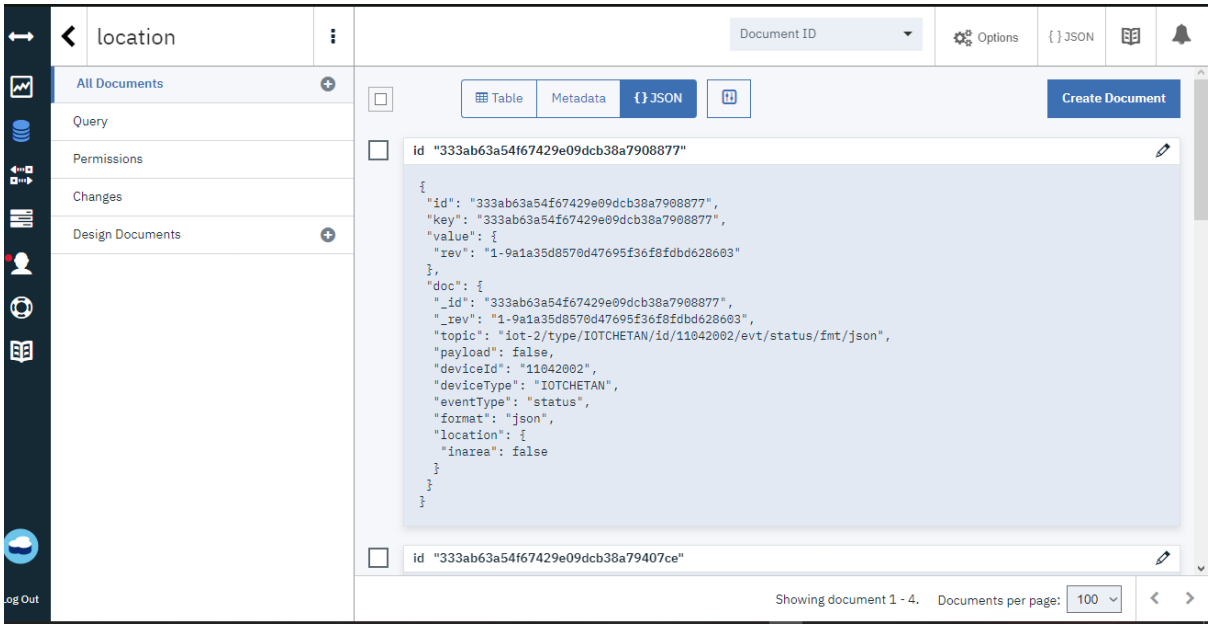
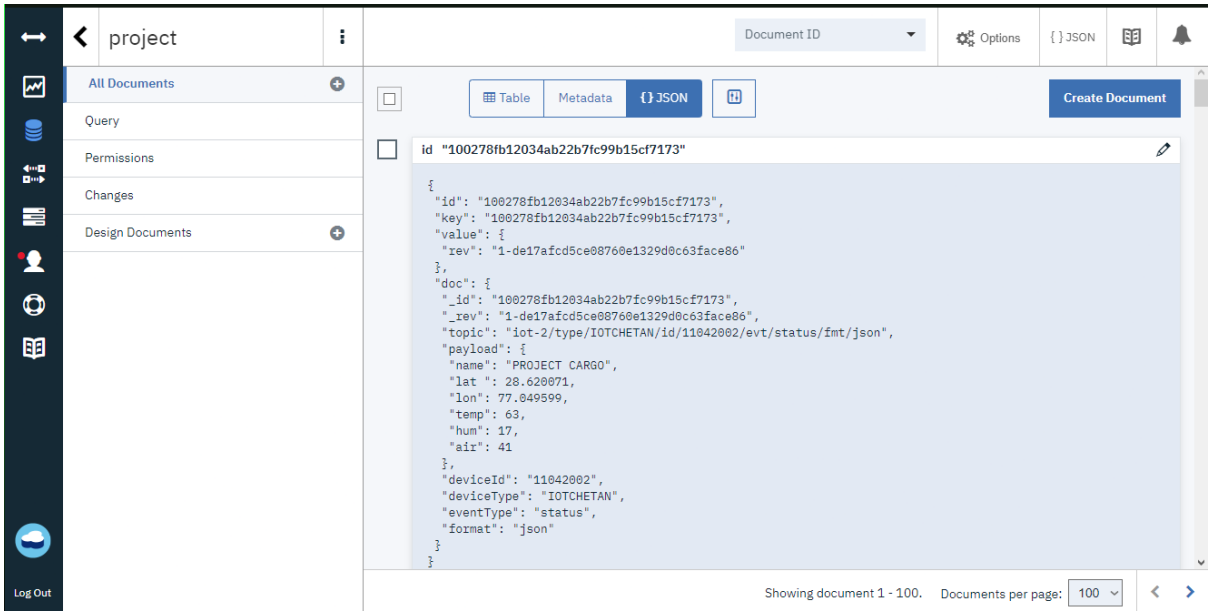
RESULTS

Geofence attached database



Sensor data database



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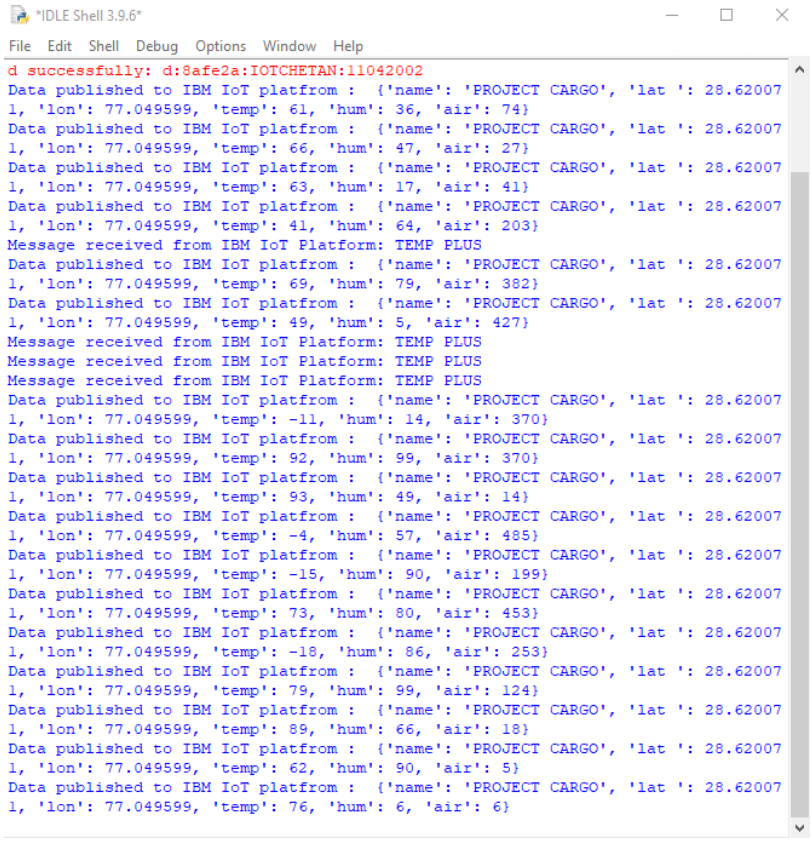
Node-red terminal

Python terminal



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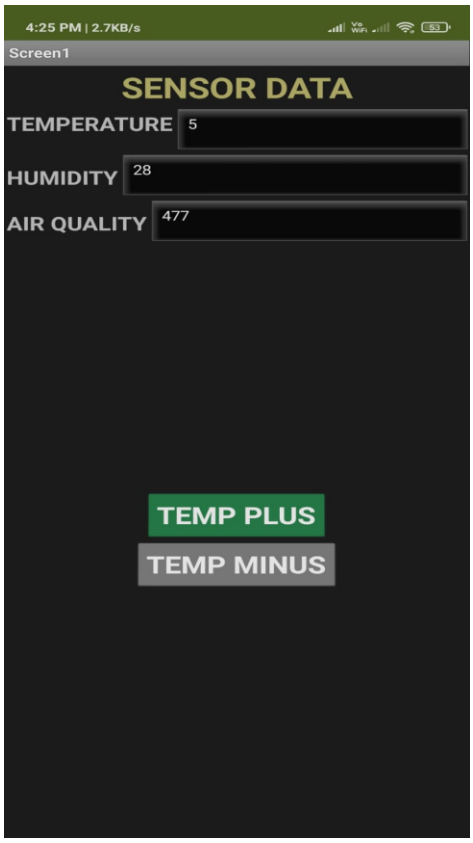
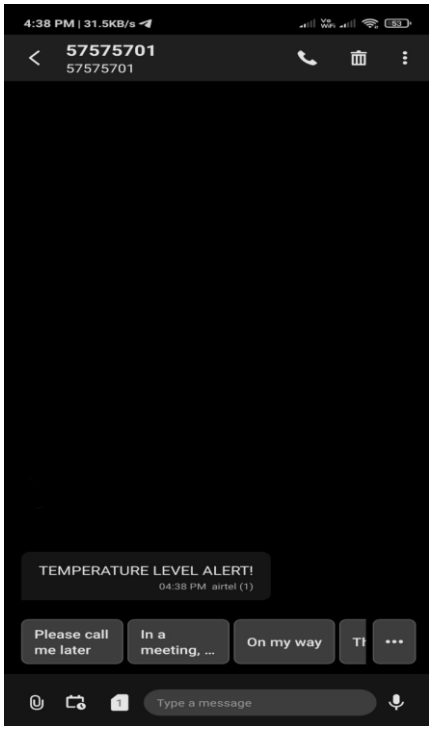
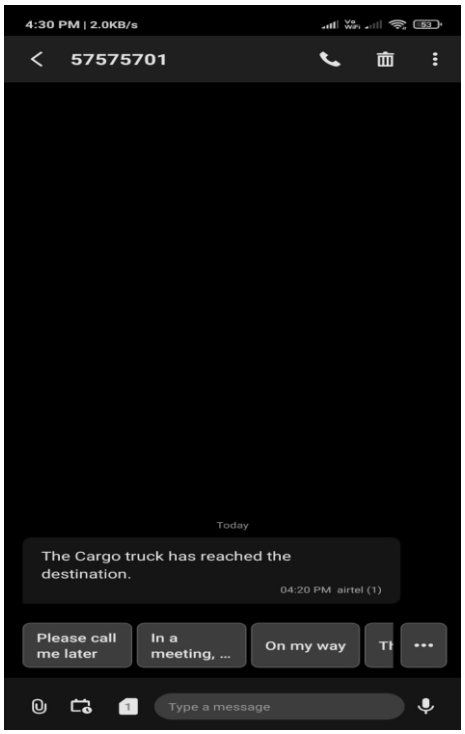
MIT app screenshot



SMS received at mobile





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ADVANTAGE

-Improved Inventory With IoT Asset Tracking
-Improved Supply Chain Transparency
-Real-Time Temperature Tracking for Cold Chain Transport
-Smoother Deliveries with the help of notification
-Easy to manage all the parameter data securely and easily.
-Centralized database helps in avoiding conflicts between different branches.
-Due to cloud based automatic system is used the data is more error free.
-Can generate required reports easily

DISADVANTAGE

- continuous connectivity of internet is required

APPLICATIONS

-These system are often used for transportation of products equipment’s carriers in industries replacing traditional cargo systems.
-It's used for transportation of perishable Agricultural products.
-It's used for temperature sensitive Medicine's transportation.

CONCLUSION

In this project we have implemented an intelligent cargo system for efficient transportation of goods from a given source to destination.Here, we are having a truck in which there are perishable items which are need to be taken care of.By sending the data into IBM WATSON IOT platform which helps to combine various features like node red and cloudant database.It helps us to send and receive data and also helps us to store data for future reference making it an efficient way for transporting cargo.

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FUTURE SCOPE

Currently, whenever there is connectivity failure it is not possible to send the data to database . So, we could improve it by sending the data to cloud later on as soon as connectivity is restored.

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SOURCE CODE

```
import wiotp.sdk.device
import time
import random
import json
import requests
myConfig = {
    "identity": {
        "orgId": "h9waei",
        "typeId": "Valadi",
        "deviceId":"12345"
    },
    "auth": {
        "token": "1234567890"
```

```
    }
}

def myCommandCallback(cmd):
    print("Message received from IBM IoT Platform: %s" %
cmd.data['command'])
    m=cmd.data['command']

client = wiotp.sdk.device.DeviceClient(config=myConfig,
logHandlers=None)
client.connect()

while True:
    temp=random.randint(-20,100)
    hum=random.randint(0,100)
    air=random.randint(0,500)
    if temp>80:
        A=requests.get("https://www.fast2sms.com/dev/bulkV2?authoriz
ation=g2lTCn6fZ8v5cxOokr7SEFWJ09QzjLYqRbAweHNMspaBP3KVmd
haHRrnWjk8dwSNy7OQKLslgATqiXb0&route=q&message=TEMPERATU
RE%20LEVEL%20ALERT!%0A&language=english&flash=0&numbers=883
7887295")

    name= "PROJECT CARGO"
    #in area location
    latitude= 28.620071
    longitude= 77.049599
    myData= {'name': name, 'lat ':latitude,'lon':longitude, 'temp':temp,
'hum':hum, 'air':air}
    client.publishEvent(eventId="status", msgFormat="json", data=myData,
qos=0 , onPublish=None)
    print ("Data published to IBM IoT platfrom : ",myData)
    client.commandCallback = myCommandCallback
    time.sleep(2)
client.disconnect()
```

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UI OUTPUT