# PROJECT TITLE

# "COLD STORAGE MONITORING USING IOT"

### A Project Report

BY

### Rohit Mahajan

### Riya Digra

**Faika Khan**

### Category:- Internet of Thing

**Internship Title:-** IOT Slot 4(1)

### Application ID:- SPS\_APL\_20200006224

### Project ID:- SPS\_PRO\_237

### Internship at the SmartBridge

### June2020

**Introduction:**-

Perishable goods are consumed by almost everyone on a daily basis. These products include fruits, vegetables, dairy products, meat and poultry, fresh food, frozen food, seafood and even pharmaceutical products. Since these goods are temperature-sensitive and their storage time varies from a few days to a few years, these items are stored in temperature-controlled rooms. This is essential to ensure their safety and quality. Moreover, it is also important to ensure that the temperature of the room must never exceed the optimal temperature.

Industries dealing with perishable goods have been using cold storage facilities for decades now. These facilities require critical monitoring as well as control of temperature and humidity. Monitoring these facilities has not been an easy task, but the advent of new technologies has made it quite convenient.

Instrumenting your cold storage facility with an IoT-enabled cold storage monitoring solution helps you to record, monitor and maintain the conditions inside the facility on a regular basis.

**Overview:**-

In this project we are going to build a cold storage monitoring system using the Internet of Things Technology. This project will help to maintain the food and other necessary items at proper conditions and for farmers to maintain their crops without the excessive human involvement.In this method, we will utilize the latest IoT technologies to build a real-time monitoring system so that we can control the various parameters like tempertature, humudity, light etc.

**Purpose :-**

Implementation of cold storage monitoring using iot helps to prevent various various unwanted situations like food decay etc by monitoring the necessary parameters and adjust them when deviations occurs from their preset value.This leads to increase in quality of the goods.

With the help of this model , the manager can easily alter the physicals conditions of his/her storage and gain a control over it.

**Existing Problem:-**

**1):-** There are certain regulatory compliances that manufacturers, wholesalers and retailers must maintain for which they need to record the data periodically and ensure that items have been maintained under specified conditions.

**2):-** Considering the huge size of warehouses, it is not easy to trace products. This makes it difficult to locate products and move them quickly through the warehouse and monitor the changes happening to these goods.

**Proposed Solution:-**

A web application will be designed which allows to keep track of data such as humidity , temperature IR and LDR values. Moreover, it will be able to control the motors in order to change the temperature, humudity etc.

**Benefits of implementing IoT solutions for cold storage facilities****:**

**1)**:-Real-time monitoring

**2)**:-Employee and asset safety

**3)**:-Well-organized stock management

**4)**:-Minimizes human involvement

**5)**:-Cold storage temperature monitoring

**Theorotical Analysis**

● To begin with, we will ﬁrst go to the IBM Watson Iot platform and create a device in it. Then, we will connect this device to the Watson Iot sensor simulator, which will act as the sensor data in our project.

● After connecting the data, we will see that in the recent events, the sensor simulator will start sending the data to the cloud platform.

● After this, we will conﬁgure the node red to seperate the different parameters of the IoT sensor simulator.

● Then, we will create some button nodes which will be used as motor buttons, connected to another device in the IBM Watson IoT platform.

● Following this, we will confgure the buttons to send notiﬁcations when they are pressed with the help of a python code.

● At the end, we will connect all the parameters with the dashboard nodes, so that we can show their real time data in the Node red ui dashboard.

● All this data will be shown in the web application. The web application will also have two motor buttons, which will switch off and on the motor.

● After this, we will create an app through MIT app Inventor in which we display the values of Humidity, Temperature, IR and LDR.

● In the app we create two buttons i.e motor on and motor off which control the motor.

● Then we do coding in the blocks in MIT app through which we connect app with the node red flow and the IBM Watson IOT platform.

● After this we create a message service on fast2sms.com. Then we connect this message service with our python code.

**BLOCK DIAGRAM:-**

WEB APPLICATION

IBM WATSON IoT PLATFORM

IBM IoT SIMULATOR

MIT APP INVENTOR

NODE RED

MOTOR CONTROL

RASPBERRY PI

LDR

IOT DEVICE

IR

**FLOW CHART:-**

START

Get Data from Iot Simulator

Store Data in The IBM Cloud

MIT App

Node Red

Display The Data

Motor Control

Web Application

**ADVANTAGES :**-

1) It will enable the management system to access and manage real time data of thie storage units.

2) It will increase the profitability.

3) The efficiency level will increase significantly.

4) The management system will be able to store goods on large scale due to low labour and time investments.

5) It enables manual control through mobile phone on the storage unit.

**DISADVANTAGES :-**

1)The management will rely significantly on good technical support to fully make use of the system.

2) The initial cost of setting up this project could be high.

**Scope of Future work:-**

Going further, most of the units can be embedded within the controller such as android application, with change in technology thereby improving the detection system. Can be implemented in Real time environmental conditions within cold storage, hence life of food products is extended for a longer period Can be made Easy accessibility for the cold storage using IOT and All the information are stored in database using MySql.

.

**CONCLUSION:-**

All in all, the implementation of an IoT-based cold storage monitoring system leads to the optimum utilization of space and resources. It helps to track the usage pattern and power consumption of devices, minimize wastage, detect anomalies within the facility and monitor and control the intensity of light as per the changes in daylight. An IoT-enabled monitoring solution brings terrific value to businesses and enhances profitability.