FINAL PROJECT REPORT

HAZARDOUS AREA MONITORING PLANT POWERED BY IoT

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ABSTRACT:

Internet of Things(IoT)represents a general concept for the ability of network devices to sense and collect data from the world around us, and then share that data across the Internet where it can be processed and utilized for various practical purposes in different aspects of life. To reach IoT based systems in industrial areas is still limited, but it has huge potential. In this project, we create an IoT based hazard monitoring system specifically suited to requirements of mining, refining and manufacturing industries. In some industrial plants, there are some areas which are to be monitored time to time. Sometimes the conditions may become critical which may lead to loss of property and also human loss.

INTRODUCTION:

IoT is a platform which has varied applications in day-to-day life ranging from domestic to industrial. The system we are going to implement aims to provide a low cost, low maintenance and robust architecture for analyzing hazardous situations in heavy industries. This Hazardous Area Monitoring Plant Powered by IoT actively records, processes and analyzes the temperature of surroundings, which is a prime safety parameter in areas where molten metal is processed, manufacturing is done or welds are made. To monitor the conditions we can integrate the smart devices in the areas which are needed to be monitored. Every device will be acting as a beacon and it is connected to temperature sensors. We can broadcast the temperature data along with the location of that particular areas through beacons. The person who generally monitor these places will be given a wearable device which will be acting as a beacon scanner. Whenever the person enters the desired area then he\she can view the required parameters and can be alerted, these are sent to cloud .Industrial accidents are as old as industry itself and so are preventive measures. The standards for explosive Areas or Atmospheres have also has evolved diversely worldwide, based on the local needs of the industries for the overall safe operation of the plants. Explosion and an fire are two of the major constituents of these mishaps.

Depending upon the environment, these can be termed 'Accidents' or fade away as simply the 'incidents' or 'near Misses' in the safety officers statistics. The first step to logically is to start defining and understanding some of the terms used in the whole scope of the loss prevention in the accidents due to explosion and fire. Also, it keeps track of high levels of dangerous gases present in the environment(LPG\Natural Gas).If a parameter is violated, the system sends an immediate notification to a set of preset list of users on their smartphones, and continues logging and monitoring data for further analysis to suggest improvements in the safety regulations of the industry. The sensors used in this prototype model can be modified with industry requirements(for example more robust temperature sensor may be required in very harsh conditions)whenever the need arises.

COMPONENTS REQUIRED :RAM- Raspberry pi 2, pull up resistor, Temperature sensor, Gas sensor.

Software Requirements : PYTHON compiler (IDLE) - This open-source Software PYTHON (IDLE) that creates a simple code to write and upload it to the panel. cloud ,Watson, node red,python 3.7.1, . Nature is written in python and founded on managing and other open-source software.

OBJECTIVES :

General Objective : Through this we can monitor the temperature parameters of the hazardous areas in industrial power plants. There will be smart beacon devices to broadcast the temperature. Whenever the person get near to the beacon he can be able to view the temperature on his wearable device.so if the temperature is high he will receive a message through SMS using API. Through the wearable device, data is sent to the cloud and through dashboard, the admins of that particular plant can view the data and take necessary caution.
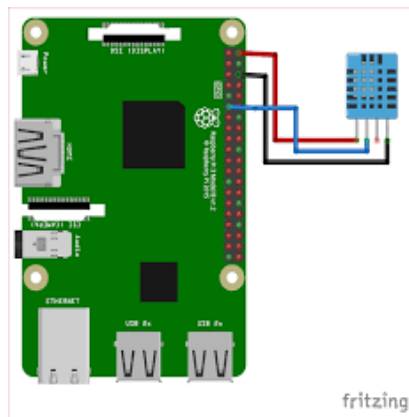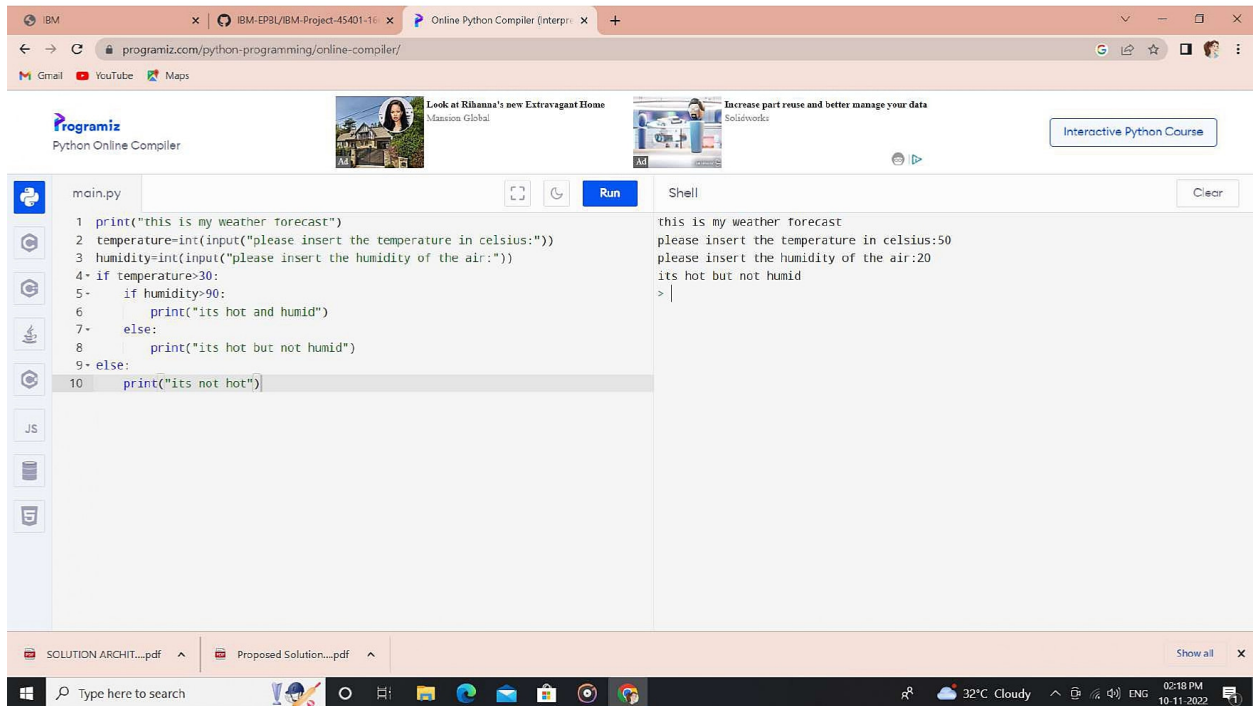
ANALYSIS :

We analyzed about cloud, Watson, node red ,ticker card ,wowki these websites are very helpful to complete the project.

CONCLUSION:

After all the data had been gathered, analyzed and processed, the proponents arrived at the succeeding conclusion. Therefore, concluded that the "Hazardous Area Monitoring Plant Powerd by IoT will help a lot in terms of preventing any danger caused by gas leakage and useful as part of safety to avoid the gas leakage that can cause harmfulness.