UTILIZATION OF TESTING TOOLS:

Date	19 November 2022
Team ID	PNT2022TMID28572
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IoT

Hardware

Hardware	Recommended Requirements
Sensor Model (both Customer and collecting vehicles need 2 models)	Arduino Mega 2560
	NodeMCU board
	Temperature Sensor, Pressure sensor, Gas Sensor, Flame Sensor
	16 * 2 LCD Display Module with I2C Module
	12V Battery, Bread Board
Processor	Intel Core i3 processor 2.3GHz
Memory	2GB RAM or more
Internet	Minimum 512kbps wi-fi connection for the module Minimum
Disk Space	2 gigabytes (GB)

Software

Operating System	Microsoft Windows 7 Or above.
Code editor	Arduino IDE
Database	Google Firebase Real-time database
Web browser	Internet explorer/Fire Fox/Google Chrome

Testing

One of the important phases of the product development lifecycle is testing and evaluation. Here following techniques are used for testing andevaluation of the system.

Unit Testing:

Unit testing is used as the first testing method. The main goal of unit testing is to isolate each part of the program and to check the correctness of the code. The system is tested with the developed model. In the model, there are no. of. sensors connected So that it can be tested whether the model sends data to the cloud. In this model, there should be many beacon devices. But the model provides only one beacon device. So, it needs to change the IDs with the coding of the model and send those data to the cloud by making beacon devices virtually.

Integration Testing:

Integration testing is done by combining all the individual modules ofthe hazardous monitoring system. Here it is focused on all the modules of the system.

System Testing:

The system testing is mainly done on the whole integrated system tomake sure that the project that has been developed meets all the requirements. Each use case and function will be executed using data.

TECHNICAL DESCRIPTION:			
No	Test Case	Actual Output	Status
1	Pushing some random values while switching on the Wi-Fi network	Create a document in the fire store database with a stamp	Pass
2	Keep the beacon devices under critical value.	Create a document in the fire store database with a time stamp	Pass
3	Sends Industry environment information on time intervals	Sends data to the database and creates documents with relevant time intervals	Pass

Testing begins with the implementation; the code is reviewed while the developing stage is for testing. A test plan is included all phases of testing and is also used as a guide for the overall testing process. Before the system implementation, the test plan was designed. A test plan includes test objectives, schedule and logistics, test strategies and especially test cases.

Test cases were created according to the designed test plan. That contains data, procedure, and expected result and represents which use to system or part of the system run. To reduce the complexity of the testing process test cases were designed for each module independently.

Manual testing methods and procedures are used for testing rather than automation tools and technologies**.**

After a full testing cycle, users can comment system was developed successfully and positive user reactions show they accepted the system. When considering user acceptance test results all the functional requirements given by the client were fulfilled and the users can carry out their tasks effectively and efficiently with the new system. A few minor modifications were made to the system according to the user feedback.