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IoT based Multi Sensor Topology in ESP8266 for Industrial Safety using WiFi Module

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Abstract: The proposed system mainly involves the preparation of IoT based sensor control in order to maintain the industrial safety whenever there is a fluctuation in the heat, water and radiation etc. By doing so using that technology along with the interface ESP8266 which manipulates all the values in cut off and if there is any increase of value it is indicated in the display and also the alert is given to them. Thus the module is being designed in such a way that it has all types of sensors like gas sensors, proximity sensor and heatsensor incorporated into them in proper way to support the safety. The WiFi module is connected with the system so as to achieve the guidelines to manage the sensitive alert to the end user to maintain the results at valid condition. The results and every guidelines show that test cases observed to be good in calculating the risk and alert the end user to get rid of industrial accidents.

Keywords: ESP8266, Proximity sensor, WiFi module.

I. Introduction

Many global industries demand the proper protection of their equipment and people. They usually require a unit of operation designed for the old model. But the largest industries to provide SCADA-based regulation that allows for advanced industries. SCADA is complex in visual cues so in order to make a standard and simple module in size and cost.

This leads to the creation of an intelligent module control of the IoT platform that will have a quick response when the sensor detects a value dependent on the configuration system that will zoom the buzzer alarm if one of the observed parameters exceeds the limit. Also the display unit made of LCD will clearly show the amount of currently recorded sensors [2]. Hence user obviously has better control and as a result will be able to periodically monitor all types of hazards.

The controller must be properly configured not only to provide sensory values and hearing time but also the most important function was to monitor the distance passing consistently. Various security equipment operating in the industry. New technologies that include social, environmental sustainability and the development of new technologies reduce the risk to the industrial operating device.

A customized program can help protect filter design circuits. It can also be managed to improve power stability in the program process. Therefore the energy sector where protection is important is compelled to have a similar system in the energy sector as well.

II. Existing System

The existing system exists due to the systematic inconsistencies they send and receive data have not been properly shared. Especially in the case of micro controllers and ARM processors or relying on system with C language. Sometimes this will create some unequal barriers to warning the region that controls the district. Another major problem exists in design without interruption in the provision of the control unit [4]. System parameters are analyzed in the technical viewing area. The most important control over the operation of the device is very important because of the many parameters. Temperature on devices varies based on atmospheric templates and device performance causing a major route problem of this problem. The system is embedded with sensors. Most industrial safety is guaranteed by security engineers. The web server is also a major role in the system. The function of the controller during operation is also an important tool.

III. Proposed System

The complete system module is shown in the block diagram. The Wifi module is very important to make clear connections to all parts of the system according to the system embedded in the controller ESP8266. So a clear idea is to use all the sensors the proper way to notify the robust operating system.

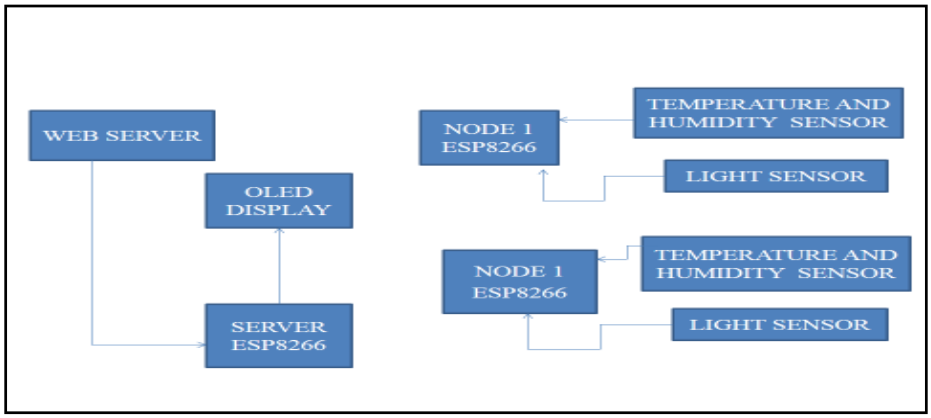

Fig. 1: Block Diagram of Sugessted System

Fig. 1 clearly shows that the system is important in monitoring accessories for any type of industry that needs security as their main purpose. In this framework, the user can use the types of hazards that may arise in their workplaces that will be minimized and notify them of all types of hazards such as rising temperatures, gas discharge and water level indicators and disturbances in a given area. IR sensors provide directional lines for radiation interference in the area. By sending a character from our mobile phone we can monitor the appliances in industry [5].

- Temperaturesensor
- Gassensor
- IRsensor
- WiFi module
- Water level sensor
- GPRS
- LDR

Fig. 2: UNO Board

Fig. 2 indicates the system model IoT that is Arduino Uno board which is very useful for the design of the manufacturer to make easy for the consumer to make it so easy to control and program it in proper way such that possibility of the system to make clarity of the results.

IV. Results and Discussion

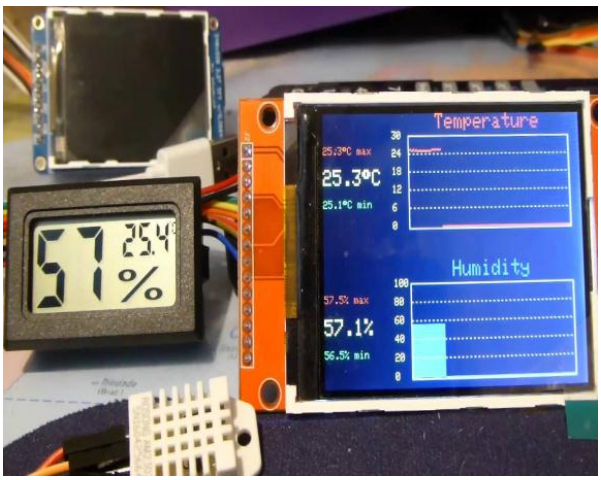

Fig. 3: Humidity and Temperature Measurement

Fig. 3 gives a clear clarity on sensor monitoring the humidity and temperature measurement at nominal level.

WiFi Module: Is well designed with ESP-12F ESP8266 WiFi Wireless IoT Board Module, proposed for clear remote serial affiliation setup.

Water Level Sensor: The sensing probe is attached with the system where the indication water level was clearly judge.

OLED: An organic light emitting diode (OLED) is a light emitting diode (LED) in which the electric illumination of light is emitted by means of component which is specially portrayed.

DHT: A distributed hash table (DHT) it provides decentralized approach towards the working of look up table to get the information.

Components Rating: The below table (Table I) illustrates the specification details of the system that can very useful in modeling of the system without any fault. Thus each and every part with the supply is mentioned [3]. So it is possible to achieve proper result.

TABLE I: SPECIFICATION OF EQUIPMENT'S

Component Name	Ratings
Temperature and humidity sensor	5 V
Gas level sensor	5 V
Water level sensor	5 V
IR sensor	5 V
ESP8266	12 E module
Transformer	9 V
Relay	12 V, 7 A

V. PROPOSED SYSTEM SETUP

The mobile application was developed in order to show the proper display of the parameters in such a way that temperature, gas discharge and water level in the particular place is detected. Fig. 4 shows the mobile application to alert the end user.

Fig. 4: Mobile Application based Control

The above table (Table I) provides the parameter specification and other clear ideas that comes into the proper discussion of the mode.

A clear definition of humidity sensor and temperature measurement at the lowest level. The proposed system measures the temperature up to an average of 25 degrees and then when the temperature rises it will be alerted by a buzzer. The entire proposed system is provided below Fig. 5.

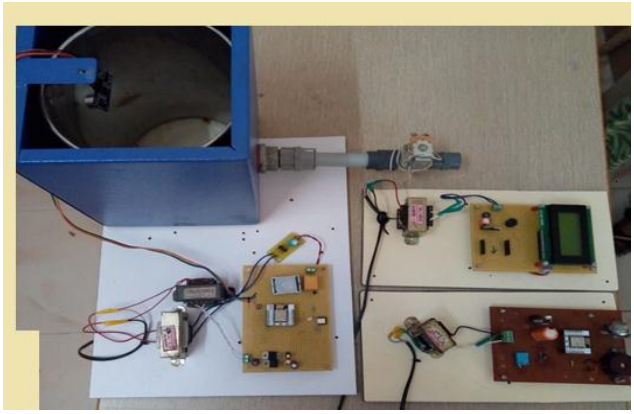

Fig. 5: Proposed System Setup

VI. CONCLUSION

The important purpose of this design is to ensure the safety of the system at maximum level. From the prototype it is very clear that any type of discharge like the gas, water and heat can be regulated once it reached the maximum value. Though it is tough to monitor all the parameters it is very much important that the safety of the people is very much important.

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