IOT Robotics Control Based industrial parameter monitoring

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Abstract

In general the human is required to monitor the industry. It require man power and monitoring full day is little difficult and consume more energy. To overcome that the new technology surveillance robots is used to monitor the industrial parameter which require high technology to operate it. The different sensors are also used to overcome that problem. The temperature and flame sensors are used to monitor the temperature range and also the fire problems. The IR sensors are used to detect the obstacle present in front and back side. If any fire accident occurs means then it will turn on the pump motor to spin the water and also turn on the fan. All the information are updated in the cloud through IOT. Which the owner can view the current details about the parameter in the industry. All the information are monitored by using the robotic chassis. This process will reduce the man power requirement and also it will not consume more energy and also used to monitor the fire accident and take the required actions.

Keywords*:* IR Sensors, IOT, Flame Sensors, Gas Sensor, Robotic Car Chassis

I. INTRODUCTION

The industrial monitoring field requires more manual power to monitor the temperature, fire, smog etc., this is most problem occurs in the industry if the parameters are not monitored and controlled then it leads to a harmful situation. . In today's age robotic has the fundamental key for new invention. The development of human machine communications on an everyday basis has made the people to utilize the technology. Instead of giving rational methodology physical methods have been welcomed by everyone. Coding to some 100's of pages requires more instance, capital and power so to overcome that [1]. In the industrial monitoring the increase of room temperature due to any fire hazards leads to severe damage. It may also leads to death in order to overcome that the temperature sensor is used [2]. Mobile Robotics in Intelligent Spaces, is extremely important in order to appreciate the special requirements of this sensorial system. The IR sensors are used to monitor the obstacle detection in front and back side of the robots [3]. Fire accident is the biggest problem occur in the industry and thousands of peoples are injured every year. Even thousands of dollars are buried due to this accidents. Fire accidents cause human health in risk and causes damages to the human resource to overcome that the flame sensors are used [4]. In order to overcome the hazards due to dangerous gases which will cause damage to the human being will be detected by using the flame sensors [5]. In normal most of the accident occurs due to prevention technique and also the time taken to take the precautions. To overcome that the IOT technique is used. It is used to upload the information of data on the cloud [6].
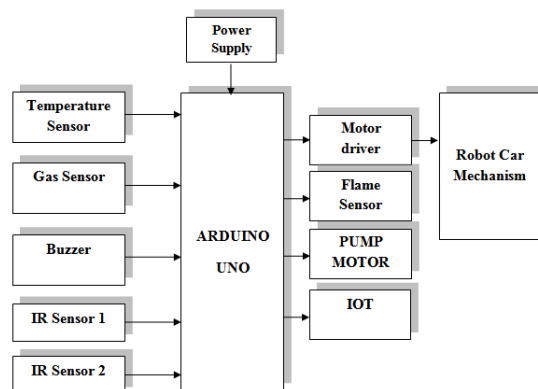
II. BLOCK DIAGRAM

Figure.1.Block diagram of wheel chair mechanism

In the existing system the continuous monitoring of the industry is done by manual process only in which a person will monitor the industrial environment and if any abnormal condition occur means then the particular person will take steps to overcome it. As this process require man power and also if any problem occur means it takes much time to overcome it. In this process continuous monitoring is little difficult.

In the proposed system the industrial monitoring is done automatically by using the robotic mechanism. The temperature and gas sensors are used to monitor the following parameter in the industry if any abnormal condition occurs means then it turn on the pump motor to spin water to overcome that. The IR sensors are used to detect the presence of object on both the front and back side. All the information are uploaded by using the IOT in the server. Which will help the owner to monitor the industry from any place in the world.

III. SYSTEM OVERVIEW
A)   Temperature sensor

In order to measure the temperature range of the place, person etc., the temperature sensor is used.

If the temperature of the industry increases from the normal range to abnormal range then the LM35 sensor will detect it and then turn on the pump motor to run the fan.

B)   IR Sensor

The IR sensor will used to predict the object present in front.

In this process the IR is fixed on both the front and back side of the chassis. If any object is detected means then the chassis will change the direction of movement.

C)   Gas Sensor and Flame Sensor

The gas and flame sensors are used to detect if any fire accident occurs in the industry.

In this process if any fire accident occurs in the industry means then it is sensed by controller and then the pump motor will run automatically to overcome the problem.

D)   Relay Driver

The Arduino controller will not be able to drive the heavy motors so that the driver circuit is required to drive the mechanism it will provide the necessary supply to drive the motor.

E) Pump Motor

The pump motor is used to start the motor operation. If any abnormal condition occur in temperature and flame due to fire accident means then the controller will automatically turn on the pump motor to spray the water.
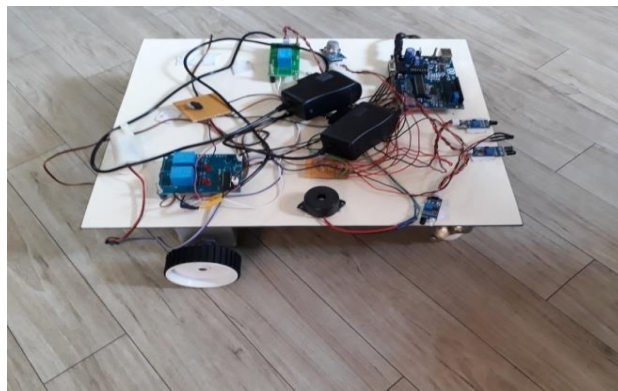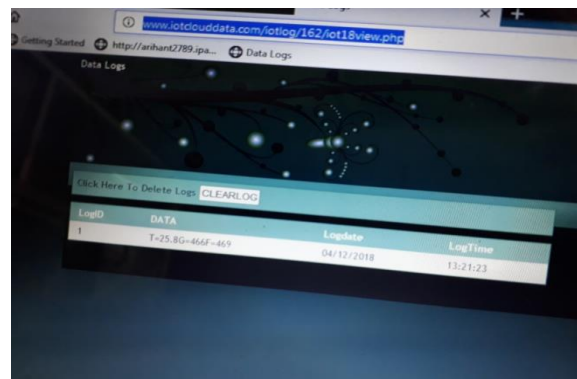

Figure.2 Hardware snapshot

Figure.3 Hardware output snap updated in IOT

IV. CONCLUSION

In this process the parameter like temperature and fire exhaust are monitored by using the robotic chassis. The sensors are used to detect the problem and overcome it. The IR sensors are used to detect the obstacle in the way. All the information is uploaded in the IOT which the owner can get to know detail about the industry at anytime from anywhere. This process will reduce the man power and also huge problems like fire accidents are prevented automatically.

IV.References

[1] International Journal of Computer Science and Mobile Computing A Monthly Journal of Computer Science and Information Technolog IJCSMC, Vol. 5, Issue. 3, March 2016,IOT Based Remote Access Human Control Robot Using MEMS Sensor Abhishek Deendayal Patil Department of E & TC Engineering, Bharti Vidyapeeth's COE Lavale, Pune.

[2] International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering Vol. 5, Issue 6, June 2016 Industrial Safety Parameters Monitoring in IOT Environment Kallappa1, B. B. Tigadi2.

[3] Infrared Sensor System for Mobile-Robot Positioning in Intelligent Spaces Ernesto Martín Gorostiza *, JoséLuis Lázaro Galilea, Franciso Javier Meca Meca, David Salido Monzú, Felipe Espinosa Zapata and Luis Pallarés Puerto Department of Electronics, University of Alcalá, Alcaláde Henares, Madrid, 28801, Spain.

[4] Mobile Robots Based Intelligent Fire Detection and Escaping System Su Hsu-Shan National Yunlin University of Science & Technology/Graduate school Engineering Science and technology, Yunlin.

[5]   IJARIIE-ISSN(O)-   Robot   System   For   Temperature   Monitoring   Prof.V.S. Kamble1,NamrataPingale2,SnehaNimbalkar3 , Apurwa Pasalkar 4

[6] IoT-aided robotics applications: technological implications, target domains and open issues L.A.Griecoa, A.Rizzoa,e, S.Coluccia, S.Sicaric , G.Piroa , D.Di Paolab G.Boggiaa.