International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

COPY RIGHT

ELSEVIER
SSRN

IJIEMR Transactions, online available on 3rd May 2019. Link
:http://www.ijiemr.org/downloads.php?vol=Volume-08&issue=ISSUE-05

Title: INDUSTRIAL AUTOMATION USING SENSORS WITH IOT ENVIRONMENT

Volume 08, Issue 05, Pages: 56–59.

Paper Authors

CINTHA. RAMA JYOTHI

Skr&skr government womens degree college (A),nagarajpet kadapa

USE THIS BARCODE TO ACCESS YOUR ONLINE PAPER

To Secure Your Paper As Per UGC Guidelines We Are Providing A Electronic Bar Code

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

INDUSTRIAL AUTOMATION USING SENSORS WITH IOT ENVIRONMENT

CINTHA. RAMA JYOTHI
M.Tech, Lecturer in electronic, Skr&skr government womens degree college (A),nagarajpet kadapa

ABSTRACT:
Industrial automation is an essential component for controlling at various sections. In various parameters of an industry will vary with respect to time are light intensity, releasing of hazardous gases. Based on these problems we need to provide safe and security to the employees in an industry. Industry Automation is an essential component for controlling at various sections. various parameters of an Industry will vary with respect to time are light intensity, hazardous gas releases are to be monitored for providing safety and security to the Industry people/employees. With the present technology the above parameters can be monitored by using sensors like gas sensor , LDR for implementing Industrial Automation using sensors we are using Arduino.If any hazardous gas releases from any machinery then gas sensor (i.e., MQ2) will identify and gives an alert by using buzzer. Intensity of light is important in an industry for safe and secured operations.LDR can monitor light intensity.By using various sensors industry monitoring can be done with processing data to arduino based on the exceedance of threshold values which gives an alert to the person.NodeMCU is an open source IoT platform. It includes firmware which runs on the ESP8266 Wi-Fi SoC from Espressif systems and hardware which is based on ESP-12 module.In this project we are implementing automation and security system.
KEYWORDS: NodeMCU, ESP8266,MQ2, LDR.

INTRODUCTION TO ARDUINO UNO:

Arduino is a both programming language and a platform source.Arduino is an open source microcontroller which can be easily programmed, erased and reprogrammed at any instant of time. Introduced in 2005 the Arduino platform was designed to provide an inexpensive and easy way for hobbyists, students and professionals to create devices that interact with their environment using sensors and actuators. Based on simple microcontroller boards, it is an open source computing platform that is used for constructing and programming electronic devices. It is also capable of acting as a mini computer just like other microcontrollers by taking inputs and controlling the outputs for a variety of electronics devices. It is also capable of receiving and sending information over the internet with the help of various Arduino shields. Arduino uses a hardware known as the Arduino development board and software for developing the code known as the Arduino IDE (Integrated Development Environment). Built up with the 8-bit Atmel AVR

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

microcontroller's that are manufactured by Atmel or a 32-bit Atmel ARM, these microcontrollers can be programmed easily using the C or C++ language in the Arduino IDE.

INTRODUCTION TO NODEMCU:

NodeMCU is an open source LUA based firmware developed for ESP8266 wifi chip. By exploring functionality with ESP8266 chip, NodeMCU firmware comes with ESP8266 Development board/kit i.e. NodeMCU Development board.Since NodeMCU is open source platform, their hardware design is open for edit/modify/build.NodeMCU Dev Kit/board consists of ESP8266 wifi enabled chip. Arduino Modules and Microcontrollers have always been a great choice to incorporate automation into the relevant project. But these modules come with a little drawback as they don't feature a built-in WiFi capability, subsequently; we need to add external WiFi protocol into these devices to make them compatible with the internet channel. This is where NodeMCU V3 comes handy that incorporates a built-in WiFi support, giving an easy pathway to design IoT applications as per your technical requirements NodeMCU V3 is an open-source firmware and development kit that plays a vital role in designing your own IoT product using a few Lua script lines. Multiple GPIO pins on the board allow you to connect the board with other peripherals and are capable of generating PWM, I2C, SPI, and UART serial communications. The interface of the module is mainly divided into two parts including both Firmware and Hardware where former runs on the ESP8266 Wi-Fi SoC and later is based on the ESP-12 module. The firmware is based on Lua – A scripting language that is easy to learn, giving a simple programming environment layered with a fast scripting language that connects you with a well-known developer community.

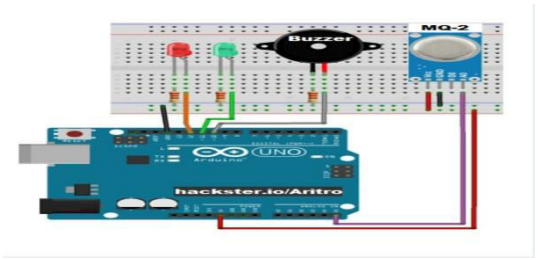
ABOUT SENSORS:

Interfacing of Gas sensor (MQ-2)with Arduino-UNO:

The sensor has a built-in potentiometer that allows you to adjust the sensor sensitivity according to how accurate detection of gas like LPG, smoke, Alcohol ,butane.The voltage that the sensor outputs changes accordingly to the smoke/gas level that exists in the atmosphere. The sensor outputs a voltage that is proportional to the concentration of smoke/gas.

Pin configuration:

MQ-2 sensor has 4 pins
A0-Analog pins
D0-Digital pins
GND-GND
Vcc-5v



Interfacing of LDR with Arduino:

The LDR is a special type of resistor that allows higher voltages to pass through it (low resistance) whenever there is a high intensity of light ,and passes a low voltage(high resistance) whenever it is a dark.LDR gives out an analog voltage when connected to Vcc(5v),which varies in a magnitude in direct proportion to the input light intensity on it. That is the greater the

International Journal for Innovative Engineering and Management Research
A Peer Revieved Open Access International Journal
www.ijiemr.org

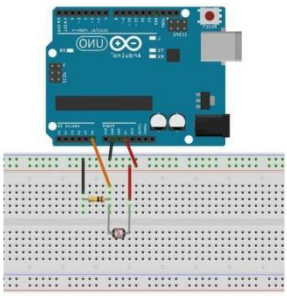
intensity of light ,the greater the corresponding voltage from the LDR will be since the LDR gives out an analog voltage, it is connected to the analog input pin on to the Arduino.The Arduino with its built-in ADC then converts the analog voltage(from 0-5v) into a digital value in the range of (0-1023).when there is sufficient light in its environment or on its surface.

Pin configuration:

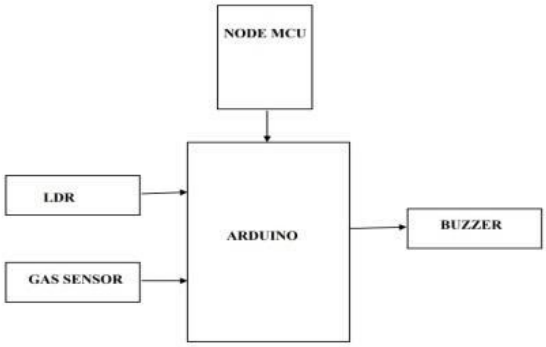
LDR has a 2pins

Vcc-5v

A0-Analog input pin.



BLOCK DIAGRAM:

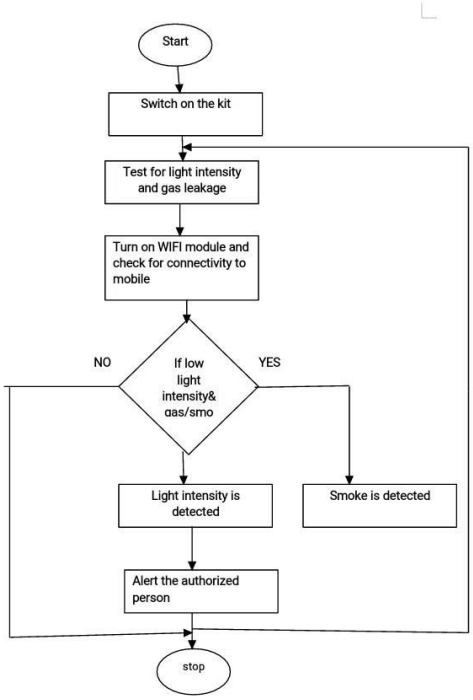


WORKING:

For working procedure of this project is we need to initialize the kit and need to check the status of sensors.then we need to run the program which is based on IOT.

Then from the sensor data if the light intensity and gas leakage is found then need to send the information through IOT to mobile.Before we need to check the WIFI module connectivity and internet connection to the kit. If the light intensity is normal then we need to check the sensor data continously and also for harmful gases.This harmful gases will be detected and will be noticed by giving buzzer sounds.

FLOWCHART:



ADVANTAGES:

- Reducing the death rate of employees in workplace at danger prone areas.
- It is easy for detecting the gas and light in industry.
- Industrial employees can feel safe and secure.

APPLICATIONS:

- It can be used for the automation of industrial purpose.

- Monitoring the living vehicle with usage by future extends.
- It can be used for home monitoring.

CONCLUSION:

We can use an Analog pin or a Digital pin, each with its own purpose and application.

The use of the Analog pin gives you a range of 0 … 1023 for the measured results.Measuring like this gives you a range to work with, but is relatively slow and in certain situations (Boblight for example), this will not be fast enough for practical use. The Digital Pin approach is much faster and could be expanded by adding another LDR on a second pin and fine tune the potentiometer of that second LDR to a different sensitivity, so that in essence you could have 3 "values" or light levels … (there will be an overlap, so the 4th value would not occur).

REFERENCES:

M. Kim and K. Kim, AUTOMATED RFID-BASED IDENTIFICATION SYSTEM FOR STEEL COILS, Progress In Electro magnetics Research, Vol. 131, 1–17, 2012

1. Li Da Zu" Internet of Things in Industries: A Survey" IEEE Transactions on Industrial Informatics, vol. 10, no. 4, November 2014
2. Ayman Sleman and Reinhard Moeller ``Integration of Wireless Sensor Network Services into other Home and Industrial networks "IEEE paper
3. Pooja Kanase1, Sneha Gaikwad2, Smart Hospitals Using Internet of Things(IoT), International Research Journal of Engineering and Technology (IRJET)
4. Cheahwai Zhao, Son Chee Loon, "Exploring IOT applications using Raspberry Pi", International Journal of Computer Networks and Applications", Volume 2, Issue 1, February 2015.
5. Deepali Javale, Mohd. Mohsin, Shreerang Nandanwar, "Home Automation and Security system using Android",IJECCT, Volume 3, Issue 2, March 2013.
6. Ashwini Deshpande, Sangita Sanap, Industrial Automation using Internet of Things (IOT), International Journal of Advanced Research in Computer Engineering Technology (IJARCET) Volume 5 Issue 2, February 2016.
7. insoo Han, Chang-Sic Choi, Wan-Ki Park, Ilwoo Lee Green home energymanagement system through comparison of energy usage between the same kinds of home appliances 2011 IEEE 15th International Symposium on Consumer Electronics.
8. Ploplys, N.J., P.A. Kawka and A.G. Alleyne, 2004.Closed-Loop Control over Wireless Networks, IEEE Control Systems Magazine.