International Journal of Research Publication and Reviews

Smoke Detector Alarm System Using Iot Technology

Kavyasri S

Department of Computer Technology , Sri Krishna Adithya College of Arts And Science , Coimbatore

ABSTRACT

 The conflagration of fire is still a serious problem caused by humans and houses are at a high risk of fire. Recently, people have used smoke alarms which only have one sensor to detect fire. Smoke is emitted in several forms in daily life. A single sensor is not a reliable way to detect wire. With the rapid advancement in Internet technology, people can monitor their houses remotely to determine the current condition of the house. This paper introduces an intelligent smoke alarm system that using Internet of Things technology to build a wireless network, uses random forest to identify smoke and uses E-charts for data visualisation. By combining the real time dynamic changes of various environmental factors, compared to the traditional smoke alarm, the accuracy and controllability of the fire warning are increased and the visualisation of the data enables to users to monitor the room environment more intuitively. The proposed system consists of a smoke detection module, a wireless communication module and intelligent identification and data visualisation module. At present, the collected environmental data can be classified into four statuses, that is normal air, water mist , kitchen cooking and fire smoke. Reducing the frequency of miscalculations also means improving the safety of the person and property of the user.

KEYWORDS : Fire Alarm Installer, Home Security Systems Near Me

1.1 INTRODUCTION

The Internet of Things(IoT) is a system of 'connected things'. The things generally comprise of an embedded operating system and an ability to communicate with the internet or with the neighbouring things. One of the key elements of a generic IoT system that bridges the various 'things' is an IoT service. An interesting implication from the 'things' comprising the IoT systems is that the things by themselves cannot do anything. At a bare minimum, they should have an ability to connect to other 'things'. But the real power of IoT is harnessed when the things connect to a 'service' either directly or via other 'things'. In such systems, the service plays the role of an invisible manager by providing capabilities ranging from simple data collection and monitoring to complex data analytics. The below diagram illustrates where an IoT service fits in an IoT ecosystem. One such IoT application platform that offers a wide variety of analysis, monitoring and counter- action capabilities is 'ThingSpeak'. Let us consider ThingSpeak in detail.

WHAT IS THINGSPEAK?

ThingSpeak is a platform providing various services exclusively targeted for building IoT applications. It offers the capabilities of real-time data collection, visualizing the collected data in the form of charts, ability to create plugins and apps for collaborating with web services, social network and other APIs. We will consider each of these features in detail below.

The core element of ThingSpeak is a 'ThingSpeak Channel'. A channel stores the data that we send to Thing Speak and comprises of the below elements:

 8 fields for storing data of any type - These can be used to store the data from a sensor or from an embedded device.

 3 location fields - Can be used to store the latitude, longitude and the elevation. These are very useful for tracking a moving device.

 1 status field - A short message to describe the data stored in the channel.

 To use Thing Speak, we need to signup and create a channel. Once we have a channel, we can send the data, allow Thing Speak to process it and also retrieve the same.

1.2 NodeMCU V3 For Fast IoT Application Development

Introduction to NodeMCU V3:

The best way to develop quickly an IoT application with less Integrated circuits to add is to choose this circuit "NodeMCU". Here ,we will give a

detailed Introduction on NodeMCU V3 NodeMCU V3 is an open-source firmware and development kit that plays a vital role in designing an IoT product using a few script lines.

Multiple GPIO pins on the board allow us to connect the board with other peripherals and are capable of generating PWM, I2C, SPI, and UART serial communications.
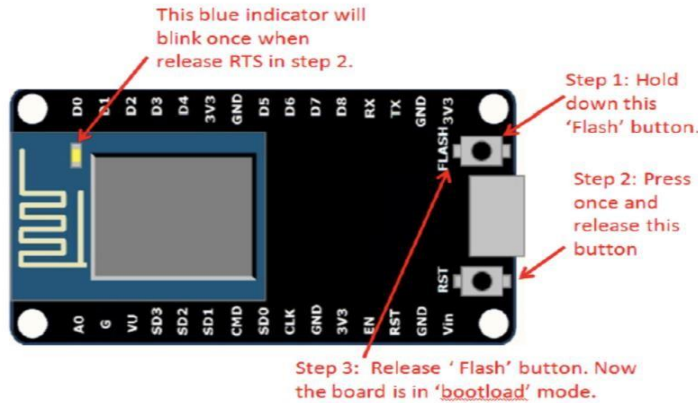
The interface of the module is mainly divided into two parts including both Firmware and Hardware where former runs on the ESP8266 Wi-Fi SoC and later is based on the ESP-12 module.The firmware is based on Lua – A scripting language that is easy to learn, giving a simple programming environment layered with a fast scripting language that connects you with a well-known developer community.

NodeMCU V3 pinout

NodeMCU V3 comes with a number of GPIO Pins. Following figure shows the Pinout of the board.
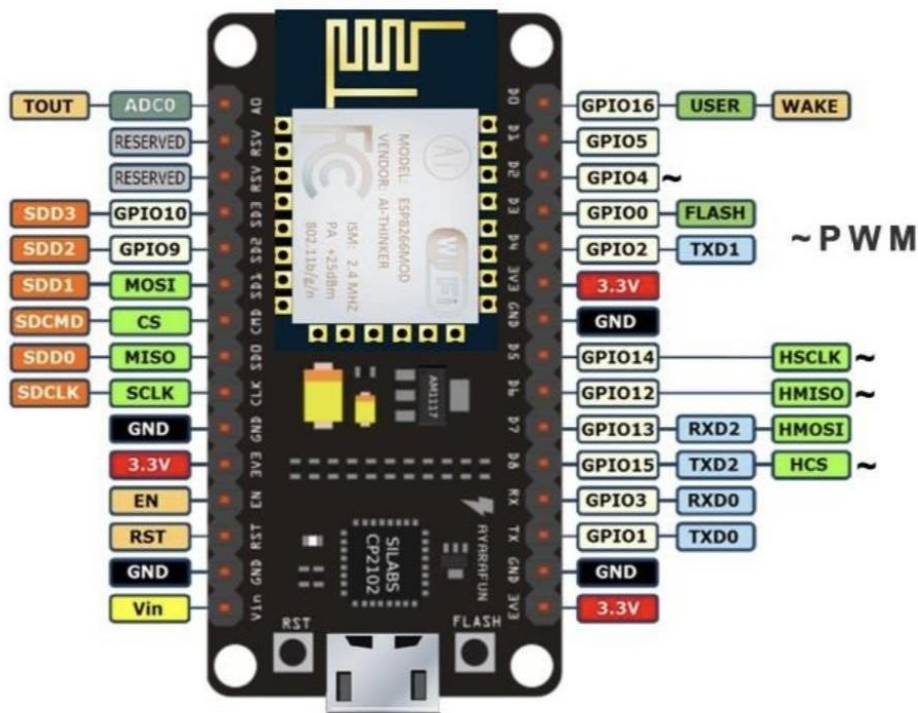
There is a candid difference between Vin and VU where former is the regulated voltage that may stand somewhere between 7 to 12 V while later is the

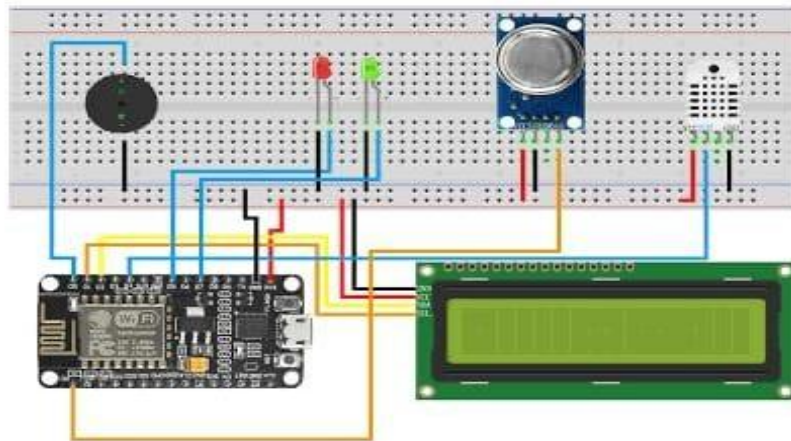power voltage for USB that must be kept around 5 V.

PROGRAMMING THE SYSTEM MODULE

Step 1: Installing the Firmware Step 2: Preparing the

Arduino IDE

Step 3: Code...

Step 4: Run the code

CIRCUIT DIAGRAM OF SMOKE DETECTION SYSTEM

CONCLUSION :

When it comes to Fire safety, it's best idea to have a smoke detector in every bedroom and hall way, as well as on each and every floor in our house.With so many smoke detector ,we can rest assured our home is safeguarded from the unimaginable. Smoke detector is one of the easiest and low expensive. Most of industries use it, because it work fatly to protect and most constructive .This system can be of great in domestic as well as industrial settings to detect smoke and alert people on an impending fire since smoke is a precursor for fire, instead of relying on heat/temperature sensors which sounds alarm when the fire has already started. This can go a long way in helping to save human life. This system can also be used to detect and deter smokers in areas where smoking is proscribed .The cost of implementing this system is relatively low since the components used are relatively cheap and are easily available in the market. The single microcontroller can be used to interface several sensors with alarms situated in different locations as long as more pins are freed for multiple inputs multiple outputs. This system comes with a power supply that can be directly plugged to the mains (240V AC)source and give the appropriate operating voltage.we can use the project fire accidents can be controlled to a great extract in a place such as forests, home ,colleges industries ,trains and some other public places.
Fire accidents leads to deaths of excess of people ,by using this technique we can save those life's easily .

REFERENCE :

"SmokeAlarmsinU.S.HomeFires".nfpa.org. September 2015.Archivedfrom the original on
2017-07-29. Retrieved 2017-07-28.
TheNewYorkTimes. February 3, 1918. Retrieved January 13, 2011. Francis R. Upton of Newark, Mr. Edison's oldest associate, has been elected President of the Pioneers.
Prosser, Richard (1970). Birmingham Inventors And Inventions. H.M. Patent Office (originally 1881) later published by S.R. Publishers 1970.
"NRC:FactSheetonSmokeDetectors".NRC.gov. United States Nuclear Regulation Commission. 4
September 2013.Archivedfrom the original on 27 July 2014. Retrieved 9 June 2014.
Wallis, Ian (1 November 2013).50BestBusinessIdeasThatChangedtheWorld.Jaico Publishing House.ISBN9788184952841.Retrieved 2014-11-20.
"Howsmokedetectorismade".MadeHow.com. Advameg.Archivedfrom the original on 7 June 2014. Retrieved 9 June 2014