

POLYPHASE INDUCTION MOTOR MONITORING BY USING WIRELESS SYSTEM

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Abstract- Now a days the induction motor has become the most popular type of motor for industrial applications. The condition monitoring have become a growing technology in recent years. The industrial sectors are widely using automation platforms to increase the productivity. The condition monitoring helps to avoid unwanted shutdown of motor and improve the operating efficiency and life of motor. Monitoring is usually done based on IOT which is a system of interconnected device that offers the capabilities of real time data collection, visualizing the collected data in the form of charts, ability to create plug in and apps for collaborating with web services, social network and other APIs. The aim of this paper is to monitor the real time data and controlling of three phase induction motor based on Internet of Things for safe and economic data communication in industrial fields. This data monitored is stored on a things speak channel from serial monitor .This monitored data can also be accessed from different location through web page .Also controlling of the three phase induction motor is possible by two ways i.e. controlling the three phase motor from motor end and also controlling the three phase motor at remote end.

Index Terms: IOT, 3-Phase Induction Motor

I. INTRODUCTION

1.1 Background

In this paper controller and observing procedures become great arrangement. Remote information correspondence is utilized in different businesses, for example, Wi-Fi, Bluetooth, and 3G in light of the fact that they are prepared to do high information rate transmission. These gadgets use framework assets a great deal. The Zigbee is generally utilized in businesses in different ways since it upholds gadgets having ease, keen organization geographies and energy sparing. Zigbee is bidirectional information transmission remote convention that is the reason information can be gotten or sent simultaneously just as parcel of gadgets and machines can be controlled. Why zigbee based framework ought to be utilized? Since, conventional assurance rehearses for recognizing engine surrenders and ensuring engines utilize different kinds of insurance transfers, for example, temperature transfers, over current transfers, electromagnetic switches, low and high current security transfers, contactors, and time transfers. They expands cost of frameworks and diminish the effectiveness and affectability of the framework and increment the ideal opportunity for identifying flaws. However, in computerized frameworks like zigbee based boundary checking framework cost

of framework diminishes, effectiveness and affectability of the framework increments when contrasted with conventional framework.

1.2 Problem Statement

Different problem will be face in this project. Firstly referred ZigBee, Zigbee model are difficult to work in large distance than referred Bluetooth is a particular range are use at certain limit exit than 2lueetooth connection will be failure. Wi-Fi are use in the project Wi-Fi are particular range is use. Internet search to different device to access large distance range this device is Internet of Thinks (IOT)

1.3 Need of Project

The worry of better quality agrarian items from the purchasers caused the ranchers to adjust to most recent horticultural strategies by actualizing present day advances for creating better farming items. Among the significant things which are mulled over by the ranchers are the characteristics of horticultural land, climate conditions and so on Customary cultivating includes a human work. With legitimate information the rancher will have the option to convey the quality item to the shopper. In this framework web based observing of agribusiness boundary utilizing different sensors resemble voltage, momentum and water level sensor, IOT remote innovation. We update the boundary result from the sensor hub information is moved to the IOT to another end worker PC.

1.4 Objective

To measure easily different electrical parameter.

- The proposed wireless induction motor parameter monitoring system.
- Preventive for motor damage.

II. METHODOLOGY

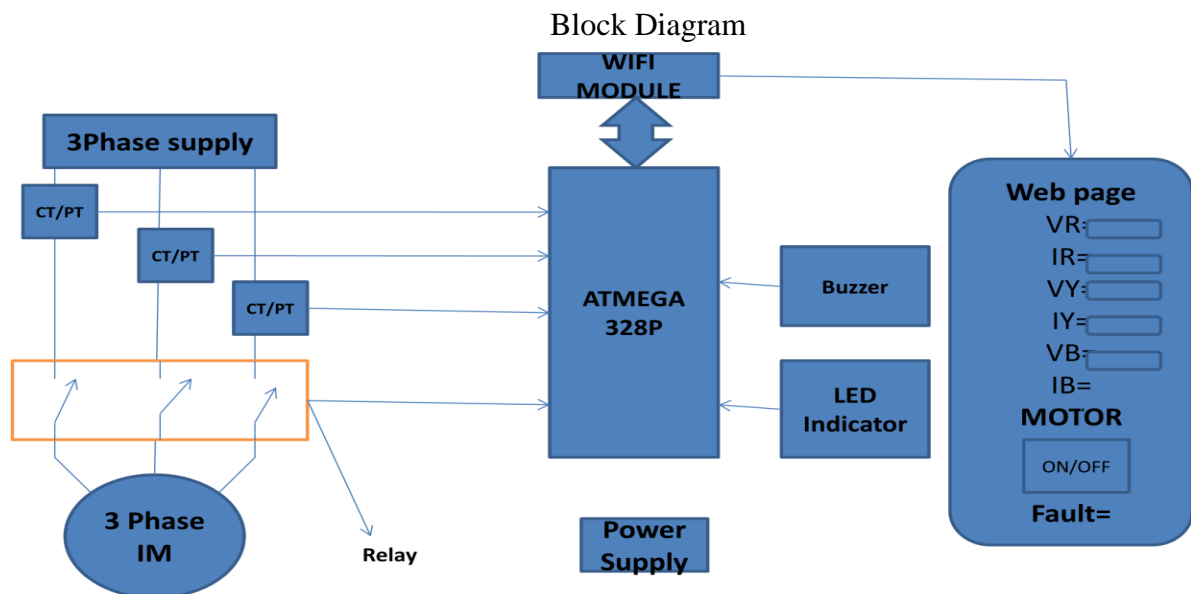


Figure 1. Three phase I.M. Monitoring by using wireless system.

III. SIMULATION & RESULT ANALYSIS

3.1 SOFTWARE DEVELOPMENT

What is a Raspberry Pi?

The raspberry pi is a credit-card sized computer which can be used for many of the things that your desktop pc does, like word-processing and games. However one key aspect that makes the raspberry pi so brilliant for schools is its ability to execute “python” coded programmes. this allows us along with the general purpose input output (gpio) pins to create programs that can control anything from a single led to opening your garage door.



Figure 2. Raspberry pi

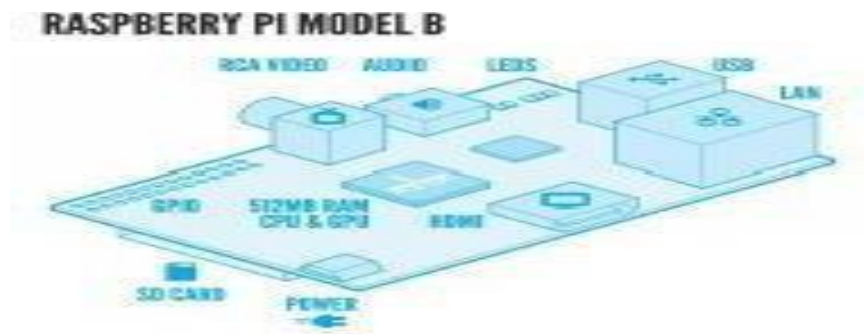


Figure 3.1 Raspberry pi model

What is Python?

Python is a free to use programming language that runs on Windows, Linux/Unix, Mac OS X and has even been ported to Java and NET virtual machines. “Python is a programming language that lets you work more quickly and integrate your systems more effectively. You can learn to use Python and see almost immediate gains in productivity and lower maintenance costs”.

IDLE

In order to create our python-run programmes we will first need to write them. This is where IDLE comes in. IDLE is a special text editor software like Microsoft Word however it understands the language Python. This enables us to write in a language that our Raspberry Pi will be able to understand and interpret.

3.2 HARDWARE DEVELOPMENT

The Raspberry Pi is a credit-card sized computer which can be used for many of the things that your desktop PC does, like word-processing and games. However one key aspect that makes the Raspberry Pi so brilliant for schools is its ability to execute “Python” coded programmes. This allows us along with the General Purpose Input Output (GPIO) pins to create programs that can control anything from a single LED to opening your garage door.

What are the GPIO Pins?

Visible in the two pictures to the left, the GPIO pins are located on the Raspberry Pi in the top left corner.

There are a total of 26 pins

1x 3.3V Power

1x 5V Power 17x

GPIO Pins 7x

Ground

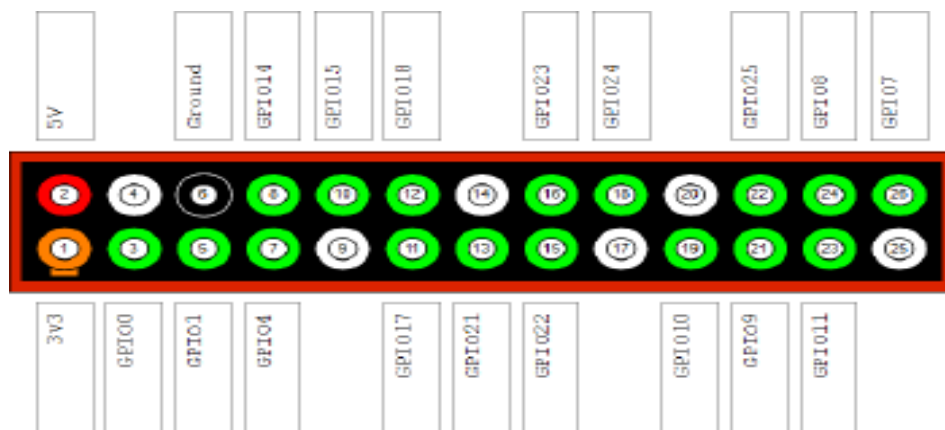


Figure 3.2.1. Pin diagram of Raspberry pi

Installing Raspbian

Raspbian is the desired operating system for the Raspberry Pi. In order to download and install the operating system onto our Raspberry Pi you will need the following: Raspbian (<http://www.raspberrypi.org/downloads>)

Win32DiskImager (<http://sourceforge.net/projects/win32diskimager>) A USB memory card rea

Logging In

Now it is time to turn on our Raspberry Pi. When the memory card, HDMI lead, Ethernet cable, mouse and keyboard are plugged in, plug in the power lead. As soon as you do this. Your screen should be black and filled with white text. This will be visible every time you turn on your Raspberry Pi.

Wait until your screen reads “raspberry pi login:” Username = pi [ENTER]
Password = raspberry [ENTER]

Configuring Raspberry Pi

Unfortunately, unlike most operating systems the majority of the configurations for Raspbian have to be done manually.

One such as example that would normally be done automatically is expanding the partitions in your hard drive. This allows us to use all of the available space in the memory card.

- Type the line: “sudo raspi-config”
- Use the arrow keys to move down to “expand rootfs”
- Press the enter button
-

Over clocking

Over clocking is used to increase the capabilities of the hardware on the Raspberry Pi. When you over clock a machine you increase the amount of voltage travelling through the circuits and therefore increase both the processing speed and the RAM’s speed

Starting the Raspbian GUI

GUI stands for Graphical User Interface and is a type of operating system. It is the most common type of user interface as it is a very ‘friendly’ way for people to interact with the computer. It makes use of pictures, graphics, icons and pointers — hence the name ‘Graphical’ User Interface.

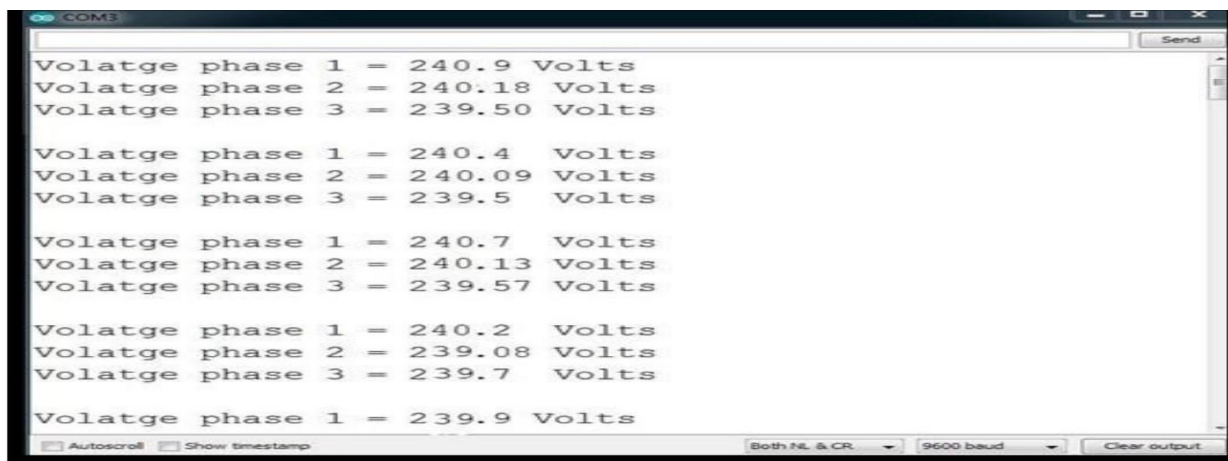


Figure 3.2.2 Over Voltage obtain on Arduino

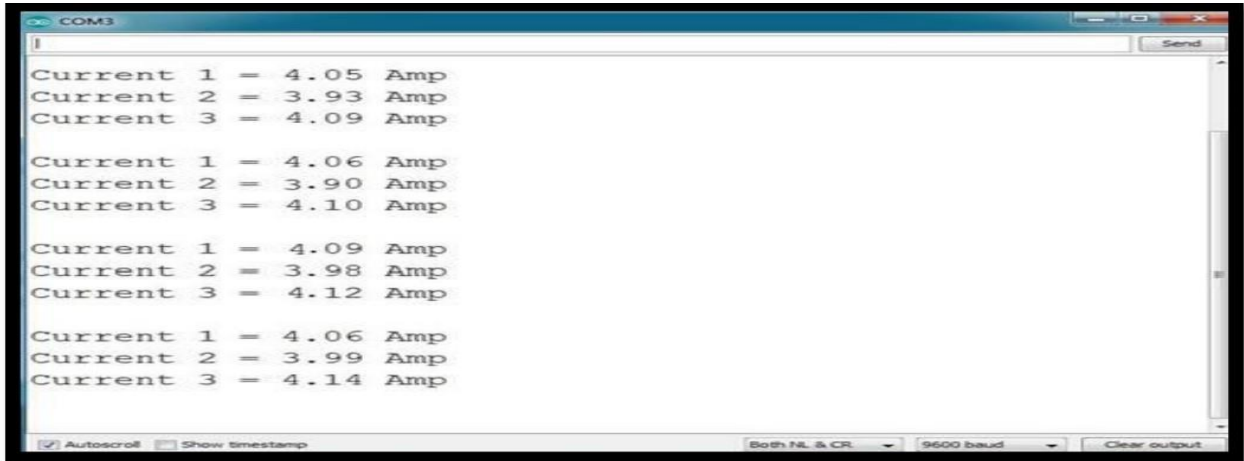


Figure 3.2.3 Over Current obtain on Arduino

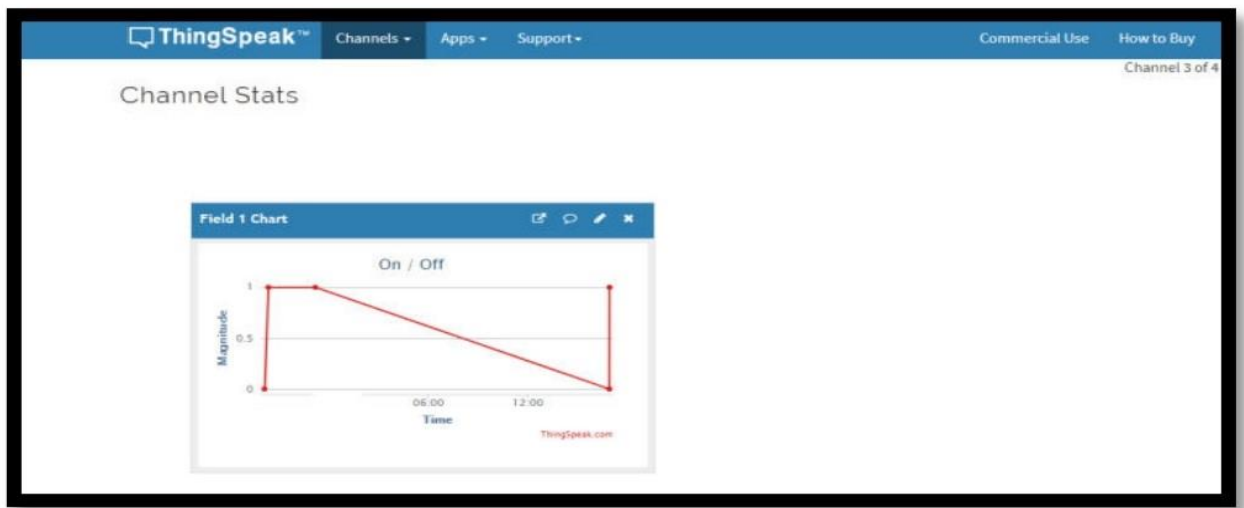


Figure 3.2.4 ON/OFF Status

3.3 Comparison

- With respect to wire system
 1. A wire system may be required thousands of yards of cable to connect to different end point.
 2. Wire system installed conduit can be costly.
 3. Wire can not run on property not own by company as roads, streams or other structure.
 4. Should a wire system fail due to cut wire corrosion dirt or another adverse.

Comparative Analysis

Sr. No.	System	Time required for Installation	Maintenance Cost	Initial cost
1	Wire	More	More	Less
2	Wireless	Less	Less	More

IV. CONCLUSION

This undertaking presents the idea of Internet of Things for early recognition and observing of engine framework disappointments distantly. The framework has been intended to consolidate different boundary estimations progressively, improving the scrumptiousness of various flaws. The checking of the engine framework presents the estimation of various boundaries specifically, stage inversion, voltage capacity, present stage, voltage and current utilization. Accordingly contrasted with customary techniques that depends entirely on this plan has more data sources which can empower an alert. The idea of IOT is introduced here for distant checking the engine. The information got by the organizer hub is put away and graphically introduced progressively by methods for an application created in visual rudiments. The proposed framework can be handily moved up to include different sensors the detecting hub for the estimation of different boundaries whenever required. The framework has a high independence, simple establishment and low support costs.

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Hardware Model

