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Portable Device Monitoring and Datalog

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Abstract: The intent of this paper is to design a smart monitoring device that is used to monitor the appliances which are used in industries to know the factors like on and off time ,number of times the appliance is on and off and also the time when it ons and when did it off. Raspbeery pi processes the data from the database and makes the device portable. aurdino calculates the timr and the number of ons and offs and passes it to display. wifi module is used to access the data through mobiles or laptops. aurdino uno with microcontroller inbuilt ATmeg is used and interfaced to raspberry pi which does the overall processing. language Java. It is used to write and upload programs to Arduino board. MySQL is written in C and C++. Its SQL parser is written in yacc, but it uses a home-brewed lexical analyser. MySQL works on many system platforms, including AIX, BSDi , FreeBSD, HPUX, eCom Station, i5 /OS, IRIX, Linux, macOS, Microsoft Windows, NetBSD, Novell NetWare, OpenBSD, Open Solaris, OS/2 Warp, QNX, Oracle Solaris, Symbian , SunOS , SCO Open Server, SCO UnixWare, Sanos and Tru64. A port of MySQL to OpenVMS also exists.
Keywords: Microcontroller, Wifi Module, Aurdino, raspberry pi.

I. INTRODUCTION

The principle In this project, a new smart monitoring system (SMS) technique is proposed. It monitors a three phase electrical system using an Raspberry pi and Arduino platform as a microcontroller to monitor the appliance and then wirelessly send the measured data results using a Wi-Fi module ESP8266. The integrated SMS design uses an Arduino NanoV3.0 as the microcontroller to measure the results from three voltage and then send this data, after calculation, to the Android smartphone device of an end user using Wi-Fi module ESP8266. Raspberry Pi is an ARM based credit card sized **SBC**(Single Board Computer).The Arduino Nano V3.0 controller and Wi-Fi module ESP8266 are a cheap microcontroller and wireless device, respectively. It allows for monitoring some elementary fundamental voltage power quality properties. An effort has been made to investigate what is possible using available off-the-shelf components and open source software. Keywords: SMS; Raspberry pi; Arduino; Wi-fi Module. The count of ON/OFF is calculated through the Arduino and also the total ON period of the appliance is calculated and this data is send through Wi-Fi and stored using database.

1) *Home Appliances:* In the appliances such as TV Washing machines and all electronics appliance can be monitored using this device and when it was turned iff and how many times it was on can be know and further actions could be taken.
2) *Transportation:* during the vehical transportation sometimes the vehicals stops due to over heating and heating is caused due to continues running of vehical so we can know about the total on time of vehical and define how much running continuously can be made. .
3) *Standard Instruments:* Big huge machines which are in industries can be know that how much time the machine was on and when there was electric failure how many times the machine got off and total time in day that the machine was working for limited hours.t if in between the machine got off we can know that for how much time again the machine need to be turned on to save the excess time of usage.
4) *Security:* Security is important factor in all areas. It provides the details like the on time off time this is use to prevent the machines from damage ..
5) *Medical Science:* In medical science the huge machines used like mri scan and xrays to prevent these heavy machines from damage due to constantly on and off we can have a daily data that how many times it was used.

II. SYSTEM OF PORTABLE DEVICE MONITORING AND DATALOG

Appliance Monitoring basically means to monitor the electronic appliance i.e. to know about the basic factors of the electronic appliance like the current rating, on/off period of the appliance and also the total ON period of the appliance.

Sometimes due to sudden spike in the current most of the appliances get damaged and this sudden spike is led due to the lightning or because of sudden supply of MSEB. So to ignore this damage we need to monitor the appliance. By monitoring we get to know certain factors which are essential for the electronic appliances that they can be prevented from damage. Hence this way we can increase the life of electronics appliances. To do this so we need to record the data which we have monitored so collection of data

and storage is very important. With the help of this stored data it will be helpful for analyzing the device and according to that designing the specific suitable circuit for it so as to prevent the appliance from damage.
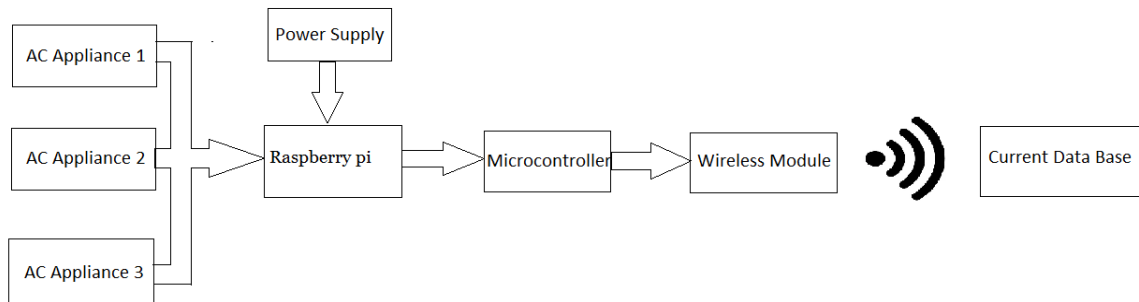

Fig.1- System of Load Based Alarm System Using GSM Module

The Arduino integrated development environment (IDE) is a cross-platform application (for Windows, macOS, Linux) that is written in the programming language Java. It is used to write and upload programs to Arduino board.

MySQL is written in C and C++. Its SQL parser is written in yacc, but it uses a home-brewed lexical analyser. MySQL works on many system platforms, including AIX, BSDi, FreeBSD, HPUX, eComStation, i5/OS, IRIX, Linux, macOS, Microsoft Windows, NetBSD, Novell NetWare, OpenBSD, Open Solaris, OS/2 Warp, QNX, Oracle Solaris, Symbian, SunOS, SCO Open Server, SCO UnixWare, Sanos and Tru64. A port of MySQL to OpenVMS also exists.

The SMS design in Figure 1 consists of two parts: the control system (practical system) and Software system (the program of the microcontroller and smartphone application).

A. Control System (Hardware Design)

The control system of the SMS in Figure 1a has been designed to measure the voltage and

Current of a three phase system. Then the microcontroller calculates the RMS values to be sent to the

Smartphone application using Wifi as the wireless communication method. The practical module

Of the control system (SMS) includes the following parts:

1. Raspberry pi unit

2 Microcontroller unit

3. Microcontroller unit

Raspberry pi processes the data stored and newly entered and entire processing is done in the raspberry pi which is the cpu of the device. Raspberry pi stores the data in database created in Php. The data is provided to aurdino which calculates or does the arithmetic logic operations and provies the require result to the display again which is pdated in the php and new entry is done . we can access the data through mobile using the wifi module which gives us access to database . these are the three units of the SMS device.

III. DESIGN AND IMPLEMENTATION

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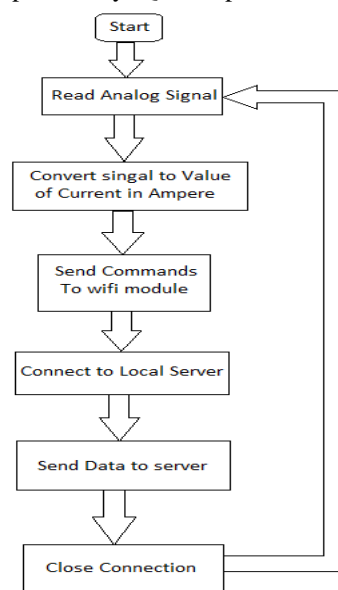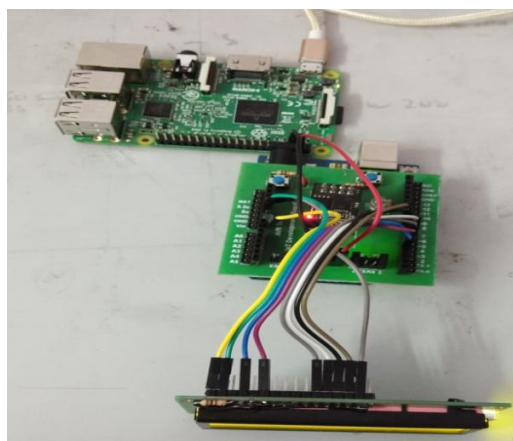

IV. HARDWARE IMPLEMENTATION

Fig- Hardware Implementation

V.   CONCLUSION

We have successfully developed a portable monitoring device which meets the following requirements:-

1.Total ON time of appliance.2. Total no. of power cutoff.Which is essential for monitoring the device and provide us with the data which is required for the analysis and further processing of the device.the data is also Displayed using the LCD display and also we can see details in database using mobile phones or in laptops, computers.

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