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RASPBERRY PI BASED WEATHER MONITORING SYSTEM

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Abstract-In today's time the main thing is the weather, so in today's time the weather is changing the drastically so, and we want to know the weather at our finger tips, when we go the outside and want to check the weather because when we go somewhere we want to know about the things that things in our favour or not. So, to know the things about the outside surroundings things that very important for us this thing is basically on those stuffs.

1. INTRODUCTION

Weather system is very important so in this project we use the iot based system that tell us about the outside temperature and many things that is related to the humidity and rain and many things. These are the natural stuffs that we want to know in our daily life.

So, in this project we use the raspberry pi with the iot based system and taking the help of the many sensors that w plot in the system like-:

- Humidity
- Rain
- Temperature detection

So these are the basic sensors that we use in this and the LCD display we use to show the outside temperature that what is going on outside. On that LCD display we are able to see the temperature and wet and amount of the humidity and the future prediction related to the weather.

We combine the uses of the iot and the raspberry pi those both are the very important things in the current scenario so we use both of them. We use the internet to connect to the satellite and show the final output on the screen to the user.

2. PROPOSED SYSTEM

- IOT is the most boomed technology in the current time because in the future everyone is moving towards the automation and easy work and IO supports it very well so that's the reason why we use the IOT in our project.
- It’s also reduce the time and cost of the user that may save us to the many trouble some situations

2.1 The System Circuit

- Power Supply
- LCD Display

3. MPLEMENTATION

It consist the following things:-

- Raspberry pi Board
- LAN cable
- "hdmi"
- Air pressure sensors
- Humidity sensors
- Temperature sensors
- Weather Meter
- Mouse and Keyboard
- Relay Board

3.1 Raspberry Pi

This system are used to see the temperature on internet. It have three parameters like

- temperature
- humidity and
- rainfall

So all value that we see on the [lcd] and we can also updated over the IoT. By readings, the user can get an honest idea of the weather of a selected area on the monitor. That machine is consist the so many things with Raspberry Pi like raindrop and temperature and lcd sensors. Now let's on the system and the whole system get connected through the "wi fi".

The whole system will detect the mainly three thing are atmosphere temperature, outside wet and the outside rain. so , in the respect of the when the weather is going to change the system detects the outside changes in the system and shows on the display that we attach to it.

3.2 LAN Cable

It is a network that is connects the computer during areas in at homes, in university and in commercial areas, almost everywhere with a different type of computers in the time of close vicinity.

This is important in computer area and any computer, you use is connected to a many device that we use.

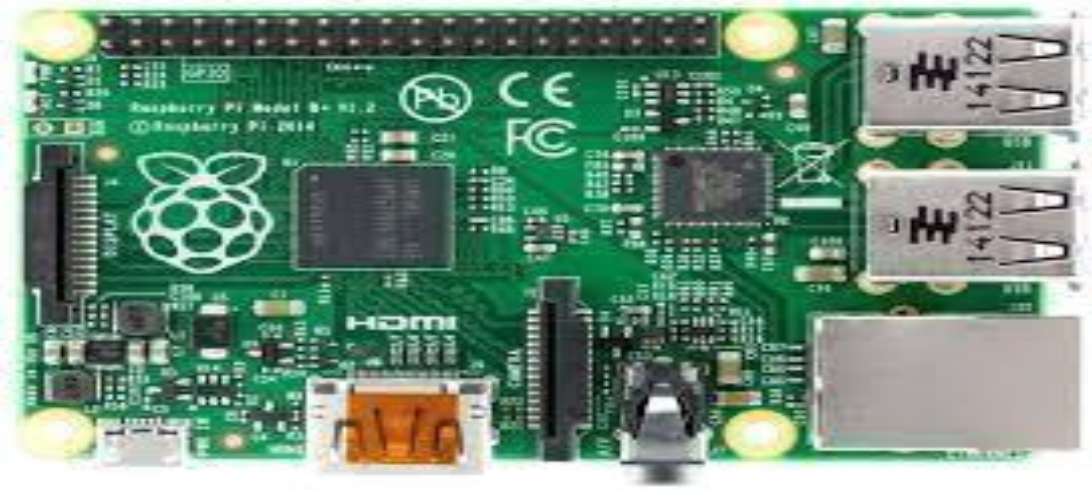

Fig. 3.1 Raspberry Pi b+ Model

3.3 HDMI

It is high definition multimedia interface], user for sending the transmission digital video and audio signals from, computer, TV box, to computer and TV. It is made by consortium of electronics manufacturers.

It is widely adopted with all TV's and computer supporting the interface.

We mainly used here "dhT11" weather sensor to sense the temperature and "bm180" Pressure sensor is the part to calculate the barometric pressure. That "celcius scale" Thermometer, scale Humidity calculator display us the correct temperature, wet through a lcd and atmospheric pressure is displayed in millibar.

All this data is shipped to Thing Speak server for current monitoring from everywhere within the earth, on internet.

The Iot project mainly divided in only four chunks. So, " DHT11" sensor catch the wet and outside temperature information and "bm180" sensor measures the outside pressures. raspberry see by help of "DHT11" sensor module's last precise output by the help of single -wire protocol and "bm180" pressure sensor's see last answer by using "i2c" protocol and takes the sensor values into a one precise number in percentage, Celsius sacle that show us the temperature, hectoPascal that provide us the pressure.

In final, all last values are deliver to ThingSpeak server by the help of already present Wi Fi of Raspberry Pi.

The 'ds18b20' it is a temperture sensor be a one wire digital sensor. This goes with a totally close package that help us to gather temperatures in wet surrounding with easily one wire interface. this basically tell that it is may combine the so many devices.

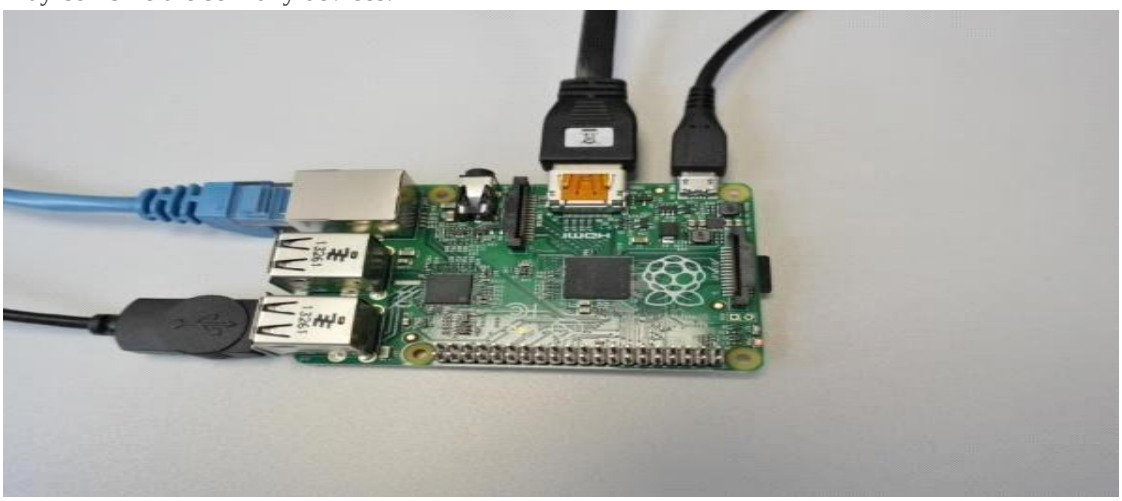

Fig. 3.2 Interfacing Device

3.4 Software Requirement

Programming on Raspberry pi are often wiped out some way. RPI can run all the high-level language that we use that is a Linux computer mainly run. The 'gcc' compiler is loaded with the raspberry Pi OS. It directly run C programs with none other many installation.

3.5 Adafruit IO

In the Internet of Things, the "Things" are uniquely identified Supported property of communication and identifying objects. "Things" are often classified supported people, machines and knowledge. For example, computers, sensors, TVs, books, etc. can be called "Things".

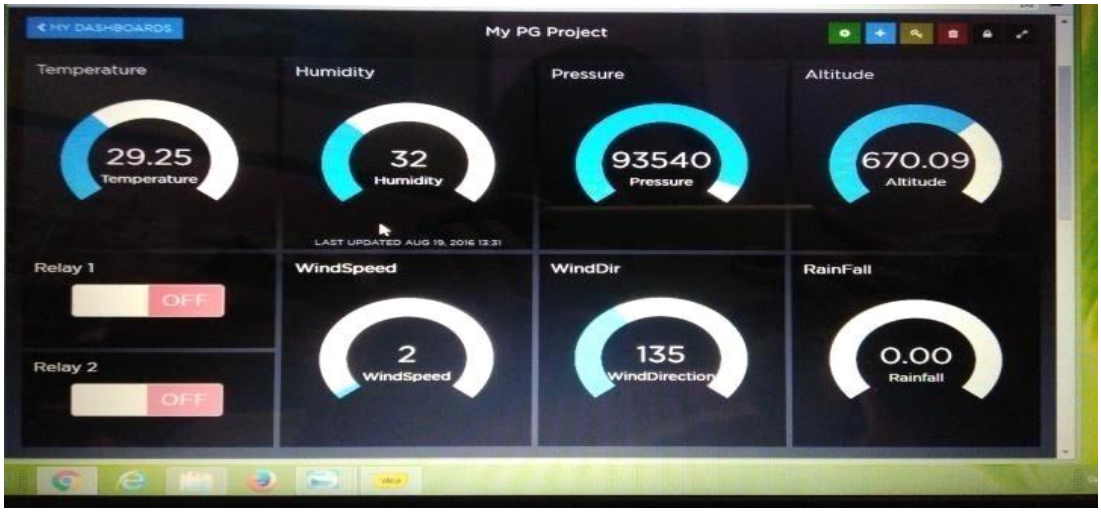

Fig.3.3 Result displayed

Table-3.1 Raspberry Pi Model

Parameters	Model1	Model2	Model 3
Zx	B+	2	
GPIO Port	40	40	40
Processing	700	900	1.2ghz
speed	MHZ	MHZ	
RAM	512MB	1GB	1GB
Bluetooth&	No	No	Yes
wifi			
usb ports	4 usb	4 usb	4*usb2
			port

FUTURE SCOPE

In upcoming year this project are often developed further and it also can simpler end in today's world application.

- From few week seen, the weather parameters things are often see for weather system for future days.
- Update sensors for more good result.
- To develop the mobile and web system for weather from any place on the planet.

CONCLUSION

Mainly it tell us the about the outside weather. It depends on the sensors and those sensors are tell us about the specific things and it is working with the Rasberry pi. It runs on the internet and raspberry pi and IoT. We used the iot because the it is the most awaited technology for the future.

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