

Capsulization of Weather Broadcasting System using Raspberry pi

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ABSTRACT: Weather broadcasting plays an important role in human life, so the collection of information about the temporal dynamics of weather changes is very important. The fundamental aim of this project is to develop an embedded system and design a weather broadcast system which enables the broadcasting of weather parameters for different sector. Such a system contain pair of sensors like temperature, pressure and humidity, which is used to sense the atmospheric parameter. Block diagram consist of the Raspberry pi, DHT-22 and BMP-180 sensor which is used for analyze the atmospheric parameters. The data from the sensors are collected by the microcontroller and it stored in SD card and LCD screen is used to display the result.

Keywords: DHT-22, BMP-180, Raspberry pi, LCD display.

I. INTRODUCTION

In the 21st century the modern tools used to measure temperature, pressure, wind, and humidity like weather parameter which would certainly amaze us, and the results obviously are better. The most sophisticated numerically calculated forecast made by the supercomputer requires a set of measurements of the condition of the atmosphere. An initial picture of temperature, wind, rain and other basic elements

Somewhat comparable to that formats made by our forefathers. When they looked out of their cave and starts farming they made some basic calculation related to the weather. Their primary approach based on the accumulated experience of the perceptive observer, while the modern technique prefer to solve equations for perfect prediction. Although it seems quite different, there were similarities between both practices. When people wait under a shelter for a downpour to end, they are making a very-short-range weather forecast. They are assumption based. Mostly on past experience, such as hard rain usually does not fall last time. In short-term, predictions is the challenge for the forecaster and to improve it what the layperson can do is the biggest question. To overcome from this problem various systems have designed and every system used to analyze some sort of parameter to increase the accuracy in there predictions. For that different processor and high quality sensor is used to get perfect and errorless reading. After that a deep study on that values can only get a most correct prediction of weather which is try to

achieve by the various system/device. There are some department like Weather station or metrological center which is dedicated to monitor and analyze the changes in atmospheric parameter.

II. PROPOSED SYSTEM

In proposed project, we present a system which is used to monitor various atmospheric parameters like temperature, humidity and pressure, which are sense by the respective sensor and they send their reading to the system. System work on those binary value and get a mid-value of three consecutive reading and then it store in the respective column, which is dedicated for that particular sensor value. Raspberry pi system support to make a worksheet within the core programming of device for the data storage so that data can be stored in well sorted format. Along with this system provide a facility of display output on more than one display linked on the same connection.

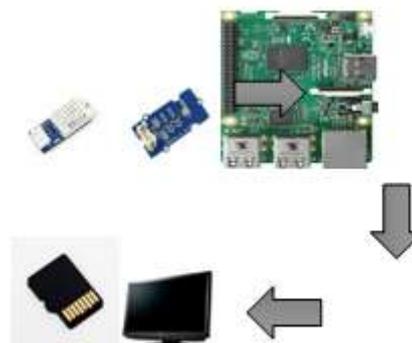


Fig. (1): Proposed System

III. BLOCK DIAGRAM

The main block of proposed system is raspberry pi 3B module consist of ARM processor along with that there is one humidity and temperature sensor DHT-22 which is able to measure the temperature and humidity of atmosphere upto 100m of area. BMP-180 is the another sensor use to measure the pressure of the atmosphere for the same diameter of area, and a SD card use for the store data in excel sheet and a LCD display for display output and a 5v D.C. power supply for the system.

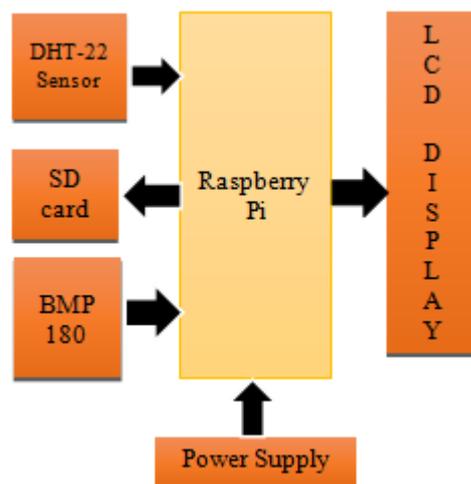


Fig. (2): Block diagram

A. PROBLEM DEFINITION

Weather broadcasting system is not available at rural area. Existing system is very costly to implement. Also specialist person is required to measure the reading of weather parameters. To overcome this drawback we are using various types of sensors for measuring weather parameters by using Raspberry pi and its output will display on LCD display, also it stores data in SD card in sheet format so that anyone can read data and share with the help of internet.

IV. RELATED TO WORK

The proposed system is designed in that way that it can be available in very less cost and can be effective for the sector where it would be used. This system/device is design to overcome the problem faced by the last developers by using raspberry pi system. So that there is wide scope of area where we can used this system with effective output. The last system consist of bulkiness with short range sensor. Also there is less scope of study and share the reading calculated/stored by the processor, that's why here a system is design which consist of raspberry pi module along with temperature and pressure measuring sensor which is connected to the system so that a perfect output could be get

through that fast operating system and it can be helpful to display output on various display board.

V. ADVANTAGES

- This device consist of a cheapest design to that of available systems.
- There is no need of internet and GSM like technology to check weather parameters.
- System supports data storage facility
- It provides Real Time Information

VI. DISADVANTAGES

- The effective range of sensor is less than that any weather station.
- If sensor is damage or short circuited then total system will collapse.

VII. CONCLUSION

The proposed system would be work on real time phenomenon so that it is bound to give an output in very less time span with more accuracy. System is less complicated and portable for user. System must be user-friendly and data must be well sorted for further study and sharing purpose.

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