

Arduino based weather monitoring system

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Abstract

Weather gives a clear idea about the atmosphere around us. It is mainly defined by the temperature and moisture present in air. The project now proposed was based on the ideology of using both science and technology on same platform to yield our desired output that is to properly monitor weather conditions without any errors. Now- a- weather monitoring stations are widely used to predict day-to-day weather. But this is on large scale. So, we are going to propose a mini weather monitoring system that is used in home or in small business areas.

Keywords

weather, climate control, weather analysis, temperature moderation, moisture control, humidity control, Arduino monitoring.

I. INTRODUCTION

Weather is continuously monitored based on three factors temperature, humidity and light present in the surrounding atmosphere. For these factors prediction we use sensors for each one and the results are stored in database and the output is immediately displayed on lcd display. Weather prediction have wide range of applications such as pharmaceuticals, chemicals, fuels, wood, paper and also it is more advantages for farmers and food business.

II. LITERATURE REVIEW

By analyzing many studies, it is concluded that weather stations are huge, sensitive and reliable systems. That's why they are widely used for planning issues. For example, let us consider airway companies and transportation systems, they have to plan their schedule depending on climate condition and the changes that can be encountered. And also, we can clearly analyze the farmers situation during cultivation of seasonal crops agricultural officers do weather forecasting and give proper intimations to farmers this is very helpful for farmers to do farming efficiently.

COMPONENTS USED: -

- ARDUINO UNO
- POWER SUPPLY
- TEMPERATURE SENSOR
- HUMIDITY SENSOR
- LIGHT SENSOR
- LCD

- BUZZER

III. RESEARCH METHODOLOGY

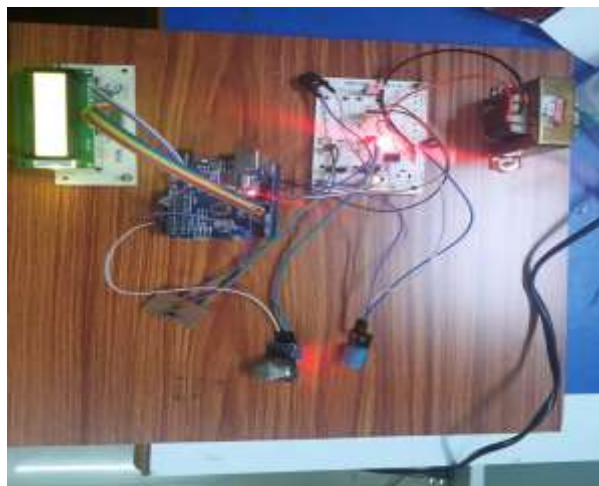
Arduino is an open-source platform that is very easy and efficient to perform for research projects. Our project is based on the Arduino which is used to develop a weather monitoring system based on temperature and humidity variables that are obtained from a DTH11 sensor.

The system works within a 20meter area range and when it is tested it predicts that the weather is hot, normal or cold and displays on the lcd screen.

This project proposes a low-cost weather monitoring system which is used at home and when tested gives proper weather condition of any location irrespective of location change. So, we can carry it to any place. Weather varies from place to place and with altitude change. So, it is difficult to get accurate results for a particular location. With the help of temperature sensor, humidity sensor and light sensor accurate results are drawn in this weather monitoring system.

IV. FINDING AND DISCUSSION

- The proposed system has low power consumption and small size which helps us to use low power and easy to carry any where we travel.
- Measurement of combinational factors temperature, humidity and lighting in one single system is time saving, simple and very effective.



- Forecasting weather without errors helps to mankind a lot to plan their actions.
- Using three sensors to predict temperature, humidity and lighting gives good results of weather conditions. Because these three factors are interrelated or connected with weather.
- Weather forecasting plays a vital role in farming and food business and also in transportation.
- The temperature and humidity readings are analyzed to say if the weather is hot, normal and cold.
- Humans' life style is always dependent on climatic changes. Humans daily struggle to earn their livelihood for this they have to do their respective work in which they are skilled. In order to earn and survive they have to follow proper weather predictions to save their health and lives during drastic climatic changes during natural disasters.
- Thus, weather forecasting impressively helps mankind at the time of natural disasters to give intimations to people about the disasters and make them prepared to save their lives.
- Thus, weather monitoring system is very useful project for the survival of mankind.



V. CONCLUSION AND FURTHER RESEARCH



This concludes that the present project was an efficient project and it will provide a competent method for recording real time weather readings and help farmers whose livelihood depends on the weather in a country like India to produce better quality crops. The gathered information is used to determine the optimal conditions for plants to grow and the farmer can modify the suitable crops in that environmental conditions. This, in turn will have a huge impact on agriculture and also on farmers throughout the world. Limitations of the weather system is mentioned below:-

- This system is developed for Small area.
- It is not web based system.

In future, sensors which analyze air quality using gas detectors could be included and a web interface or service to feed the data directly to Internet could also be inbuilt in the project to meet the future demands as per the requirement of people.

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