

Local Weather Station System

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Abstract : Weather is the state of the atmosphere, to the degree that it is hot or cold, wet or dry, calm or stormy, clear or cloudy. Weather generally refers to day-to-day temperature, humidity and pressure and precipitation activity, whereas climate is the term for the average atmospheric conditions over longer periods of time. When used

without qualification, "weather", is understood to mean the weather of earth. Monitoring the weather conditions manually is difficult. The present work is to develop an automated system which monitors the weather condition. Through this system we can automatically collect the information about humidity, temperature, pressure, sunrise and sunset. The details are stored in a database and according to current and previous data we can produce the results. The objective of this paper is to formulate the weather and be able to forecast the weather without human error.

Keywords: Arduino, Temperature, Humidity, Pressure and sunset, sunrise monitoring.

I. Introduction

A LoGMIEER Local Weather station is an instrument that measures meteorological parameters using sensors without intervention of humans. Temperature, pressure, moisture, sunshine, rain flow, humidity this parameter can be measured and displayed. Today, automated weather stations are demanded as commercial requirements with a variety of facilities and options. Although automated weather stations can be built and implemented in an embedded base. This project involved hardware, software and distributed circuit with wired technique. Hardware generally consists of a microcontroller as a main core processor of the system in which various sensors are connected with respective circuitry. It also as a system is based on a microcontroller. We do not require different types of software tools & program IDE, circuit design tools, embedded software. This all software development is based on hardware selection of the main core chip technology. Automated weather stations require meteorological parameter monitoring sensors to Microcomputer/Commercially demanded data loggers with communication devices or through serial and parallel ports to obtain weather data. The importance of weather monitoring is existing in many aspects. The weather conditions are required to be monitored to maintain the healthy growth of crops and to ensure the safe working environment in industries, etc. Due to technological growth, the process of reading the environmental parameters became easier compared to the past days. These are the miniaturized electronic devices used to measure the physical and environmental parameters. [1] The importance of weather monitoring is existing in many aspects.

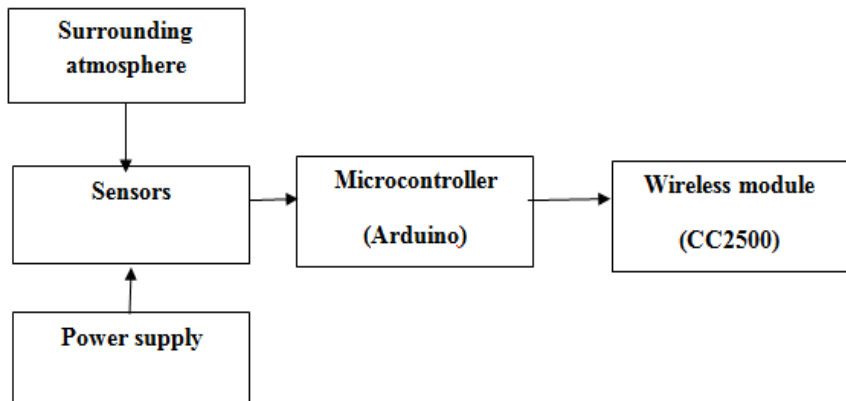
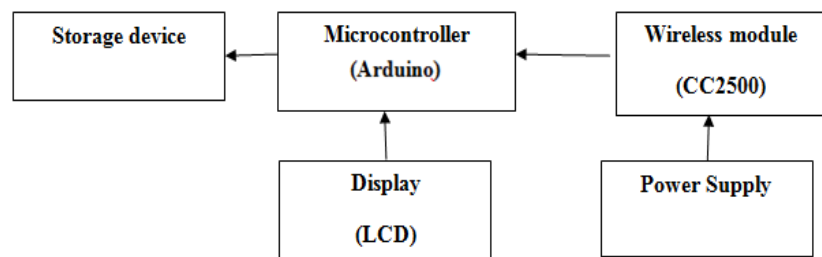
II. History

In 2012, for a weather monitoring system and irrigation controller, we need to measure different parameters i.e. Atmospheric temperature, Humidity, Wind speed, Wind Direction, Radiation, Soil temperature, sunshine and Rain fall etc. The key objective of this project is to report on a developed indigenous time-based microcontroller-based irrigation scheduler who performs user-defined functions and outputs commands to drive appropriate actuators. [1] A weather station is a facility, either on land or sea, with instruments and equipment for observing atmospheric conditions to provide information for weather forecasts and to study the weather and climate. The measurements taken include temperature, barometric pressure, humidity, wind speed, wind direction, and precipitation amounts. Wind measurements are taken as free of other obstructions as possible, while temperature and humidity measurements are kept free from direct solar radiation. Manual observations are taken at least once daily, while automated observations are taken at least once an hour. Weather conditions out at sea are taken by ships and buoys, which measure slightly different meteorological quantities such as sea surface temperature, wave height, and wave period. Drifting weather buoys outnumber their moored versions by a significant amount. [1]

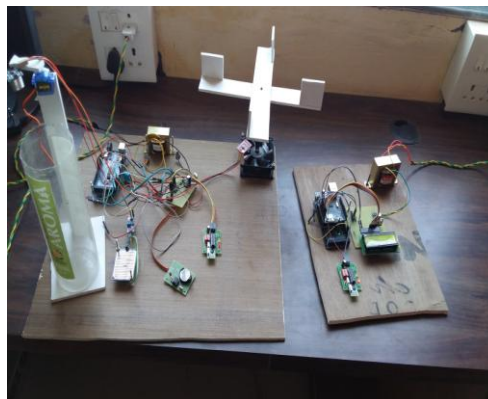
Present system:-

Present system consist of six sensor to measure the weather / environmental factor such as Temperature, Humidity, pressure, rainfall count, wind flow count, sunrise and sunset. The value read from the sensor are processed by Arduino microcontroller and the readings are also displayed on LCD.

Our present system use six sensor to measure the weather factor such as Temperature, Humidity, Pressure, Wind flow, Wind Direction, Sunshine, Sunset and read from the sensors are processed by the Arduino and stored the data in a text file. The reading are also display on LCD.

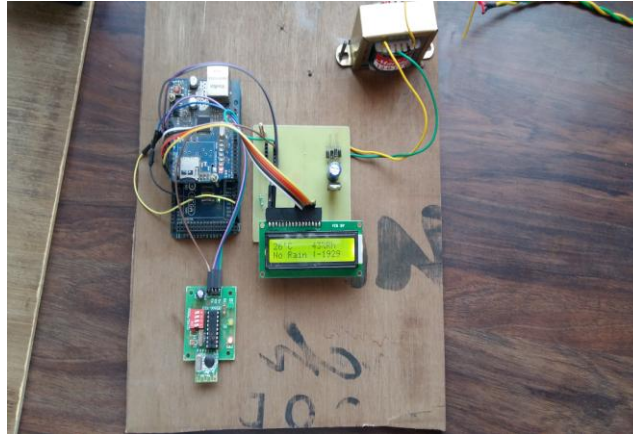
III. Block Diagram Of Weather Staton**Transmitter section:****Receiver section:****Working:**

The atmospheric different parameter like Temperature, pressure, Humidity, Gas etc. sense with help of different sensor. The output of this sensor is goes to the Arduino this monitor on this signal send to the transmitter module. The transmitter transmit all present data to the receiver and at the receiver side receiver receive this data is display on LCD. This result will Store in SD card by Connecting the SD card to the PC result will display on Text \file so any one can take a print.

Result of system:

[Date: 17/02/2017 Time: 11:28am]

Temprature:27⁰C, Humidity: 43%, Sunshine: 6:45am, Sunset: 6:35pm]

**Rainfall Count:**

Date	Time	Result
17/02/2017	11:28am	5mm
17/02/2017	12:45pm	9mm
17/02/2017	4:30pm	14mm

Wind Flow Speed

Date	Time	Result
17/02/2017	11:28am	8-10Mph
17/02/2017	12:45pm	12-14Mph
17/02/2017	4:30pm	10-12Mph

IV. Conclusion

In the Project “LoGMIEER Local Weather Station”. we measured different atmospheric parameter like Temperature, Pressure, Gas, etc. we tested in this unit Temperature, pressure, sunshine, sunset, rainfall count. Display the result on LCD.

We got the result as below

Parameter	Reading
Temperature	27 ⁰
Pressure	29881 BAR
Humidity	43%RH
Sunshine	6.35Am
Sunset	6.45Pm
Rainfall count	5mm

References**Journal Papers:**

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