# Weather Monitering System

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***Abstract***

Weather monitoring 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 work is to develop an weather monitoring system using microcontroller and measure on internet. The environmental parameter is measured in this work. In previous work at least two three parameter data is gated through interfacing with wireless pc.In this work measure the temperature, humidity, barometric pressure, altitude and sea level, rain detection, light intensity. The microcontroller at mega 32 is used. We used microcontroller for controlling purpose. The data is recorded through internet interfact.In this work I have measures six parameter at a time. The data is recorded on internet on pc, tablet, mobile where net is available.The internet. What is it? Where is it? What it can do? How reliable is it? What's driving it? These quotations will be answered leading to an insight into what is and will likely be possible. Using internet for weather monitoring raises new issue and there are implementation limitations. Internet communication is scalable and can be used to connect to everything in a weather monitoring network, from a single sensor to display, to complete global data network. This not only applies to data connectivity, but also to the network management and maintenance of system. It is possible to connect to everything. Do we want to see every measurement? Information overload, smarter presentation tools. Does the quality matter? Quality control algorithm, notification, data filing. How do we handle enormous volume of data?-use and delete or save or back up.

## I. INTRODUCTION

Weather monitoring holds great importance and uses in several areas ranging from keeping track of agricultural field weather conditions to industrial conditions monitoring. Weather monitoring would help in keeping track of different climatic behaviors including temperature, humidity and light intensity. Weather monitoring system can be wired or wireless one. In case of wireless communication, the connect will be more convenient and user friendly and weather monitoring would not require physical presence of the person at location [1]. Wireless communication is transfer of information over a wide distance without the use of wires. The distance may be a long or short. GSM technology is the cheapest and most convenient technology now being used for wireless communication. The wireless weather monitoring system basically requires few basic module such as GSM module, display module, sensors and microcontroller module [2]. A global network of network consisting of private, public, academic, business, and government networks, that are linked by a broad array of communication network technologies, all using the standard protocol suite. Now internet is everywhere is used so all this parameter is get on it. I proposed work that weather parameter like temperature, humidity, rain fall, pressure, sea level, altitude,light intensity all this information get on internet.

It gives the early knowledge about weather parameters like temperature humidity, pressure rain fall, light intensity what happen in future. In that direction we can take decision. The lot of information gives more benefit, it is cost effective. For agricultural purpose it is very important to know about weather.The objective of this work is to design a wireless weather monitoring system in which a microcontroller is interfaced with sensors, LCD and internet to transmit sensed data wirelessly**.**Now a day the information about weather is very necessary. The rain is fall there in no season.

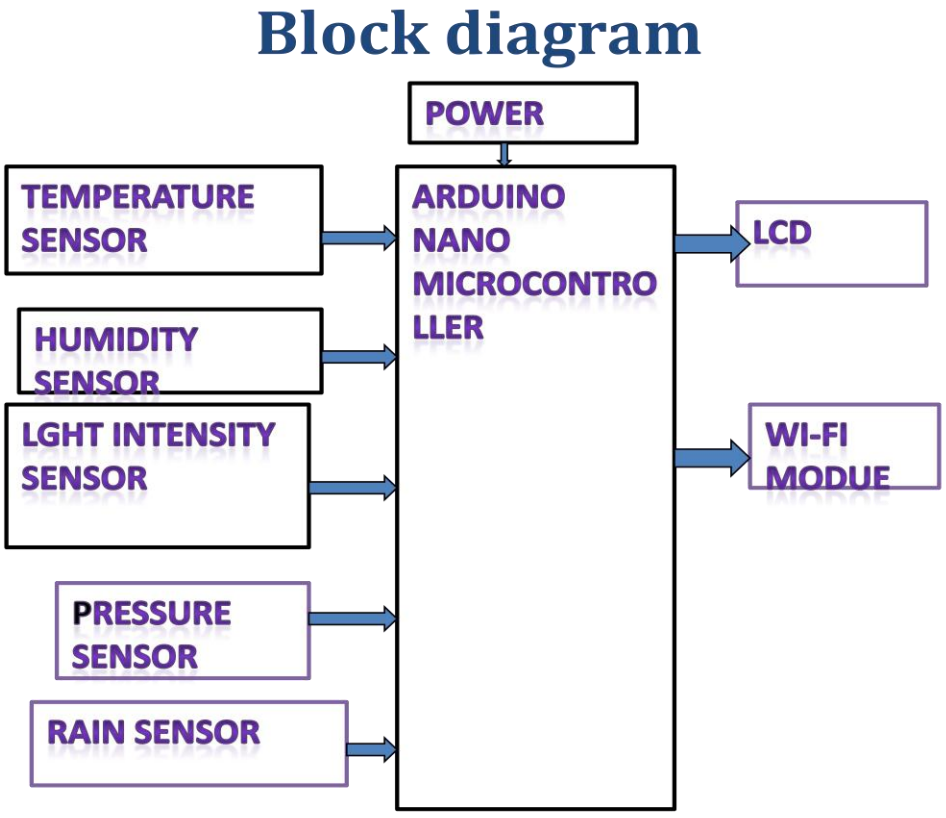
## II. LITERATURE SURVEY

Adnan Shaoutetal [1]. Present an embedded design of design low cost weather station. Three weather parameters: wind speed, wind direction and temperature are measured. The measured parameters are used to measure the wind chill temperature and dressing index calculation and a build in intelligent system. Only basic type sensors were used so that cost of this design is reduced. A small scale neural network was planted into the microcontroller for the post processing. Taking the three measured data as inputs, the system gives out the dressing index as output. All of the data were displayed on the LCD and also sent to the computer from the serial port.

R. Lajaraet al [2] in the paper "ultra low power wireless weather station" proposed a design of a tiny and low cost wireless weather station to measure accurate temperature, relative humidity, light intensity and atmospheric pressure. The direct climate variables and others indirectly attainable, like dew point, wind chill are reliable through a web page. The chosen sensors are factory calibrated and have a digital interface. The weather sensor nodes are able to achieve ultra low power consumption, allowing a single super capacitor to power them for 52 day

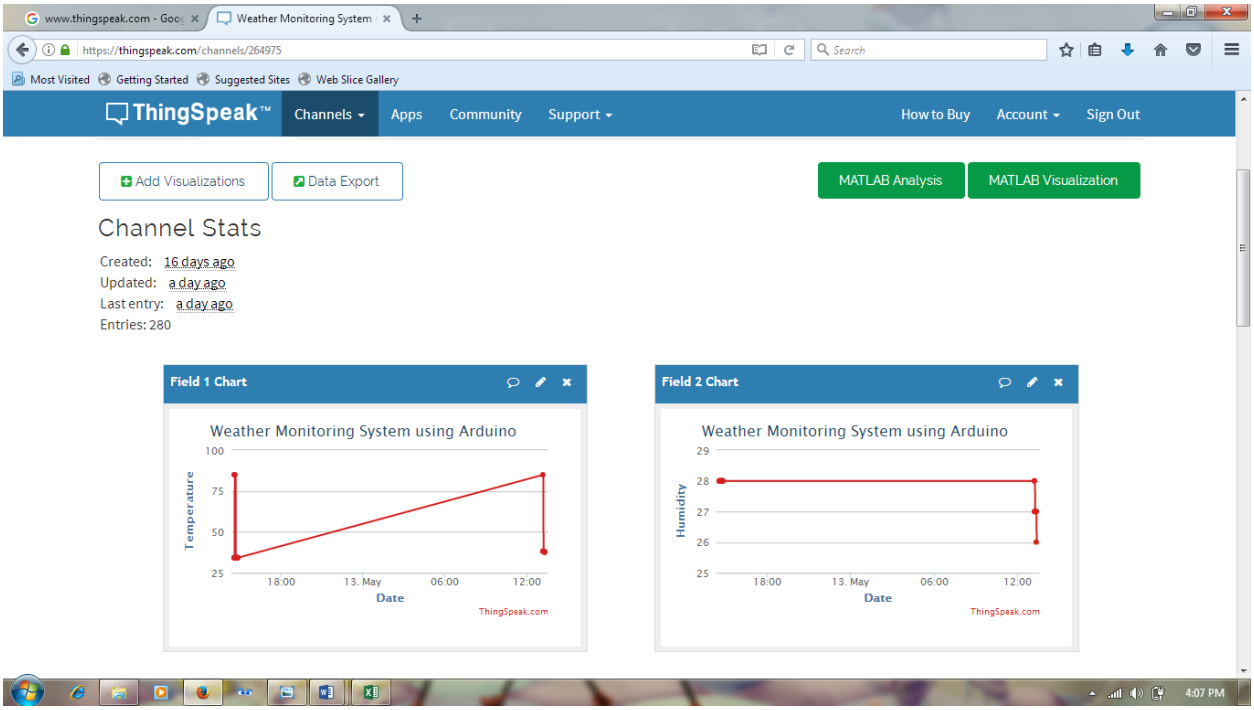
MirceaPopa et al. [3] developed "embedded weather station with remote wires control". Weather monitoring is off great importance many domains such as: agricultural, military, entertainment etc.There are several solution for monitoring the weather .The classical solution present in static weather stations. Another solution is based on wireless sensor networks (WSNs). The third solution uses low dimension weather stations. This paper present a weather station made up of temperature, humidity, pressure, and luminous sensors, embedded in microcontroller based board. The station is remotely controlled by the user through SMS commands. The remote controlled can implanted through wires, on internet, or wirelessly by using different communication technologies. The system uses the SEN-0833 USB weather board, which includes the temperature and humidity sensor, pressure sensor and the TEMT 6000 luminosity sensor. The software is written in the python language. It is divided in three parts I) the main program for initializations, establishing the connection to the GSM network, receiving the data for WSB weather board and processing he sensed values so that user commands can be achieved, II) the SIM library: the function set the PIN value, prepare the SIM card, verifies the strength if a single for using the GSM network, III) the SMS library: the functions are responsible with sending, receiving and erasing, after being processed, the message.

## III. SYSTEM DEVELOPMENT



## IV. RESULT

***A. In this work data is given directly on net continuously shown below.The graphical form shows different readings of parameters.***

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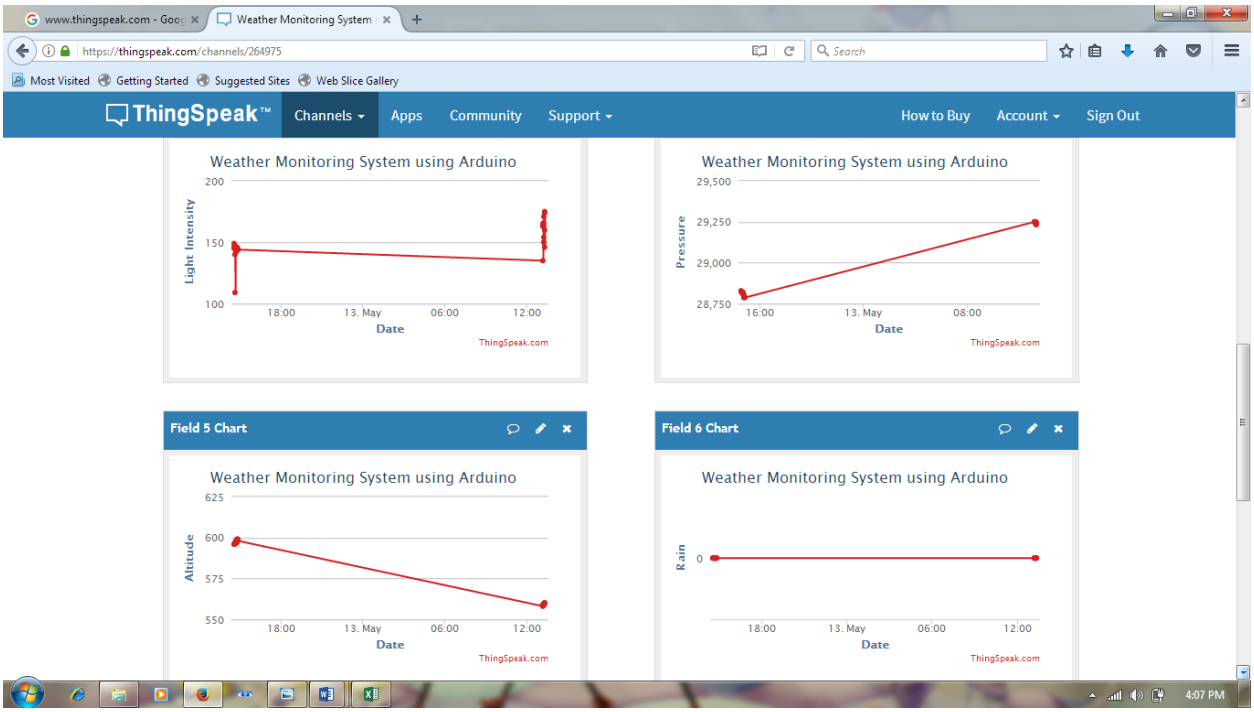
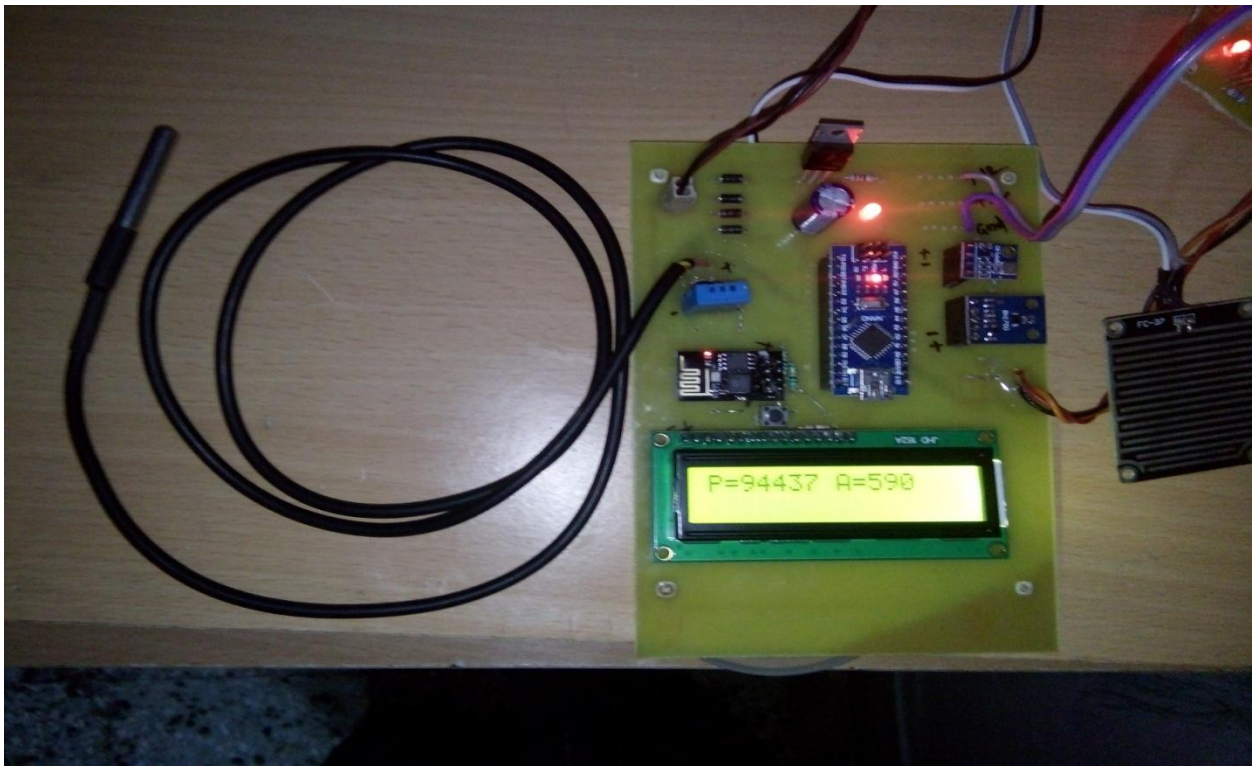


***B. Below Shows the Data in Tabular Form:***

| created_at | entry_id | Temperature | Humidity | Light Intensity | Pressure | Altitude | Rain |
|---|---|---|---|---|---|---|---|
| 2017-05-11 12:26:28 UTC | 1 | 34 | 28 | 146 | 28816 | 597 | 0 |
| 2017-05-11 12:26:52 UTC | 2 | 34.44 | 28 | 146 | 28816 | 597 | 0 |
| 2017-05-11 12:27:11 UTC | 3 | 34.4 | 28 | 147 | 28819 | 597 | 0 |
| 2017-05-11 12:27:34 UTC | 4 | 34.5 | 28 | 149 | 28815 | 597 | 0 |
| 2017-05-11 12:27:53 UTC | 5 | 34.5 | 28 | 146 | 28814 | 597 | 0 |
| 2017-05-11 12:28:16 UTC | 6 | 34.5 | 28 | 144 | 28819 | 597 | 0 |
| 2017-05-11 12:28:35 UTC | 7 | 34.5 | 28 | 145 | 28823 | 597 | 0 |

***C. The Data Also Shown on LCD:***




## V. CONCLUSION

### *A. Conclusions*

This work deals with designing simple and low cost weather monitoring system using DS18B20, DHT11, BMP 180, BH1750, LCD, Arduininano microcontroller unit to monitor weather condition of the desire location and transmit it to a internet at distant location. The designed product module is at prelim stage and design only for temperature monitoring but can be enhanced for monitoring other different type of environment and climatic behavior of a location, which can also be cost effective.

### *B. Applications*

- Reduce manpower
- Wireless sensor system
- Accurate system
- Faster data transfer
- Automatic indication
- Lpw cost
- Time saving
- Weather can be monitored from remote places
- Less circuitry required because of software used

### *C. Future Scopes*

Adding more sensors to monitor other environmental parameter such as soil PH sensor, CO2 and oxygen sensor while allowing the replacing of current sensors if a wider range of measurement desired. And also integration of additional monitoring devices such as Wi-Fi camera to monitor growth of agricultural product. And also the data can be uploaded to web server continuously.

Automatic irrigation control can also be implemented using moisture sensor to fetch data regarding water presence in the farm and do turn on or turn off water pump accordingly.

Trespassing can be monitored developing surveillance system using infrared sensors and pressure sensor.

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