

Modification of Current Weather Indicating System used at Airports

Sagar Tathod, Somesh Joshi, Umair Yelurkar

Aissms College Of Engineering, Pune University, Maharashtra.
26513umair@gmail.com
sagar.tathod02@gmail.com
somesh1294@gmail.com

S.V. Lohar
PROFESSOR, DEPT. OF E&TC.

Abstract— The measurements of temperature, atmospheric pressure, wind speed and wind direction remotely by using the sensors is not only important in weather monitoring but also crucial for many other applications like Airports and industrial processes .

India Meteorological Department (IMD) collects, processes, archives and disseminates a wide range of weather and other environmental data generated by the department's observational network. With the installation of CURRENT WEATHER INDICATING SYSTEM (CWIS) in the National Data Centre located at Pune, the data acquisition and processing operations have been automated.

A modified version for real time weather monitoring is presented in this project to monitor the real time temperature, relative atmospheric pressure ,wind speed and wind direction using different sensors which is used at airports.

All the sensors mounted at a specific location near the runway of airports measure the required parameters and transmit the same using Wi-Fi transmitter to the airport tower.

The device has many advantages compared to other weather monitoring systems in terms of its smaller size, on-device display, low cost, portable and robust.

This system provides a set of tools and procedures that allow all data relevant to climate studies to be properly stored and managed. It serves the main objectives of climate data collection, storage ,quality control, easy access, data protection, climate data analysis and customized product generation.

Keywords--- Current Weather Indicating System (CWIS), India Meteorological Department (IMD)

I. INTRODUCTION

India Meteorological Department (IMD) is the National Meteorological and Hydrological Service (NMHS) of India responsible to take meteorological observations and to provide information for weather sensitive activities. All national climate activities, including research and applications are primarily based on observations, recording the state of the atmosphere. These observations are also required for the timely preparation of weather and climate analyses, forecasts, warnings, research and other national and international environmental programmes.

The importance of meteorological data for operational needs of weather forecasters, researchers and crop forecasters are gaining attentions in the domestic and the international research community.

Data acquisition, processing, quality control, timely access and database management are important components that make the meteorological information valuable in issuing weather forecasts as well as climate and agricultural research. The increasing challenge is to manage these growing

resources of data so that users can get the needed information for their specific applications.

Computer technologies are essential tools for processing and archiving huge amount of meteorological data and providing derived information to all types of users. In order to meet the ne w challenges in managing atmospheric data.



Figure 1

II. PROBLEM STATEMENT:

To modify Current Weather Indicating System (CWIS) used in Airport for Indian Meteorological Department so as to:

1. Bypass the data logger and the display unit and display the data without their use on PC.
2. Reduce the excessive components used and reduce its complexity.
3. Reduce the total cost of the receiver system.

SYSTEM ARCHITECTURE:

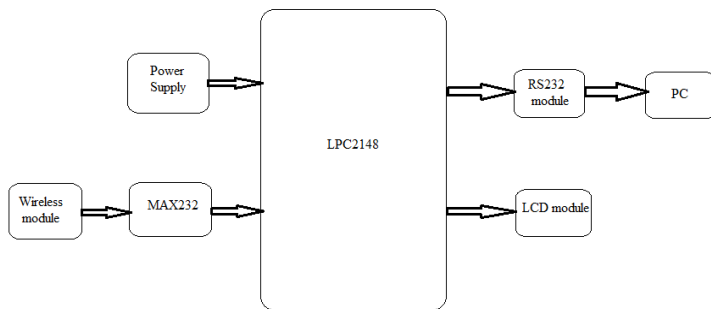


Figure 2

III. WORKING:

Data is received using receiver Wifi modem which is passed through a single modified receiver block. The output data is interfaced with MET-LOG software which now has provisions for displaying the data as well as storing it in excel format for future references.

The received data from the Wi-Fi modem is directly provided to serial to ETHERNET converter and then to ARM controller using MAX232 which amplifies as well as makes it compatible to arm-controller. ARM-controller displays the instantaneous data on LCD and converts it to RS232 compatible format from which it is further displayed on PC with the help of RS232. The MET-LOG software has additional provisions unlike older version for storing the data as well as displaying it.

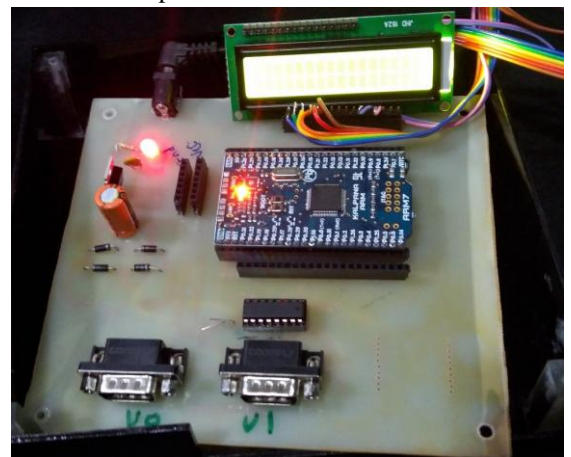
IV. RESULT:

Thus we have modified Current Weather Indicating System (CWIS) used in Airport for Indian Meteorological Department such that

1. The data logger and the display unit have been bypassed.



2. Excessive components used have been reduced.



3. Total cost of the receiver system has been reduced.



V. CONCLUSION:

1. In this project, we have proposed a new receiver system for IMD, PUNE. This will bypass the data logger and the display unit as expected.
2. We have successfully implemented the 802.11 IEEE standard.

3. All the received data can now be displayed on PC .
Also a graphical version of the same is available.
4. We have also designed a protective casing so as to
protect the system from dust and moisture.

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