MICROCONTROLLER BASED VOLTMETER

Prepared by: Akshay Kumar Sharma

ABSTRACT

The rapid development of electronics field in past years has shown a deluge of microcontrollers, sensors, actuators and computers. Embedded systems play a vital role into human life to such an extent that it has become one of the basic human necessities. A voltmeter is an instrument used for measuring the electrical potential difference between two points in an electric circuit. Analog voltmeters move a pointer across a scale in proportion to the voltage of the circuit; digital voltmeters give a numerical display of voltage by use of an analog to digital converter. The project aim is to design a circuit using a suitable microcontroller, which converts the incoming analog voltage to its equivalent digital data on the PC.

In this project, the input voltage device transmits a range of 0 to 10V voltage which then adjusted with an additional circuitry that allow only 5V to be received by the PIC16F877A microcontroller. The ADC (analog to digital converter) is built in side of PIC16F877A with the programming language visual basic 6.0. The microcontroller interfaced with MAX232. This interfaced is done for the conversion of TTL language to the RS232 level. This data is serially fed to the PC through one Com Port, where it has a front end to convert back to analog data and display on the monitor.

In addition the system was tested to scrutinize the legitimacy and the results describe that the system was able to accomplish the aim of this project. This system can be implemented to find out the way to convert input analog signal to digital output signal using a simple adjustment of electronic components. Furthermore this designed can be enhanced to convert in both modes, means analog to digital or digital to analog vice-versa.This enhancement can also be more valuable and more effective to the world of electrical and electronics.

KEYWORDS: Microcontroller, Max232, Visual basic6.0, Display Monitor