The present work is centered around on the design and development of both hardwares and softwares for cost effective Data Acquisition System (DAS), which are used for measuring slowly varying physical variables. Physical parameters such as temperature, humidity, light intensity etc., which are generally considered as slowly varying signals are sensed by respective sensors, integrated sensors or transducers and then converted them into voltages or currents. The DAS was designed using PIC microcontrollers, for communicating with Personal Computer (PC) through USB (Universal Serial Bus) or Serial Port. For Parallel Port based DAS, it does not require any microcontroller. The designed system is then tested with the application program developed in ‘C’ as well as in ‘Visual Basic’ also, which allows online monitoring in graphical form as well as in numerical display, and also saving it to the hard disk automatically for future use.

For parallel port based DAS, the same hardware is also tested by measuring temperature and light intensity of different colours with the application program developed in LabVIEW. The system works fine, and is independent on which the application program is developed viz. C, Visual Basic or LabVIEW. Thus, the custom designed hardware can also be communicated with application program developed in any language.

Keywords: Data Acquisition System (DAS), Personal Computer (PC) Based, Parallel Port, Serial Port, USB