Preface

     Industrial process control is a fascinating and challenging area of electronics technology and nothing has revolutionized this area like the microcontroller. The microcontroller has added a level of intelligence to the evaluation of data and a level of sophistication in the response to process disturbances. Microcontrollers are embedded as the "brains" in both manufacturing equipment and consumer electronic devices.

     Process control involves applying technology to an operation that alters raw materials into a desired product. Virtually everything that you use or consume has undergone some type of automatic process control in its production. In a manufacturing environment, automatic process control also provides higher productivity and better product consistency while reducing production costs.

     Over the years, the need for control systems which enable engineers to control and monitor a sophisticated industry with many processes from a single point gave rise to SCADA systems. SCADA is an acronym that stands for Supervisory Control and Data Acquisition. SCADA refers to a system that collects data from various sensors at a factory, plant or in other remote locations and then sends this data to a central computer which then manages and controls the data.

     SCADA is a term that is used broadly to portray control and management solutions in a wide range of industries. Some of the industries where SCADA is used are Water Management Systems, Electric Power, Traffic Signals, Mass Transit Systems, Environmental Control Systems, and Manufacturing Systems.

     The communication protocol needed to transfer data between a control room and the processes has evolved over the years from simple serial protocol to Ethernet protocol. Now, with the emerging of wireless communication, there is no need for complex wiring connections throughout an industry. In fact, a control room may be "portable" with the engineer moving around an industry with his laptop or PDA. This is the goal of the project.

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