RFID based employee login system and identification display on PC

The main aim of this project is to acknowledge automatically to the authorized person of the company regarding employee login and logout details with time using Real Time Clock (RTC) and his details, like name, ID number using RFID technology. This is used for ensuring the authorized person about employee's specific information by which the security concern on a particular employee can be monitored and controlled.

The project makes use of a microcontroller, which acts as a central controlling unit. This module is capable of communicating with the input and the output modules. The input module is the RFID reader which decodes the RFID tag which is with the employee. The RFID reader decodes that employee's RFID tag and sends the information to the microcontroller with time using RTC module, and the data of the employee like log in or out of the office with time is displayed on PC. The details like employee name, ID number will also display on PC and also on LCD.

This project makes use of an onboard computer, which is commonly termed as micro controller. It acts as heart of the project. This onboard computer can efficiently communicate with the sensors being used. The controller is provided with some internal memory to hold the code. This memory is used to dump some set of assembly instructions into the controller. And the functioning of the controller is dependent on these assembly instructions.

The main objectives of the project are:

1. Employee authentication.
2. To get login and logout details automatically.
3. Display on PC.

The project provides us exposure on:

1. RFID module working.
2. Embedded C programming.
3. PCB designing.
4. Interfacing PC to Microcontroller.
5. Real Time Clock interfacing to Microcontroller.

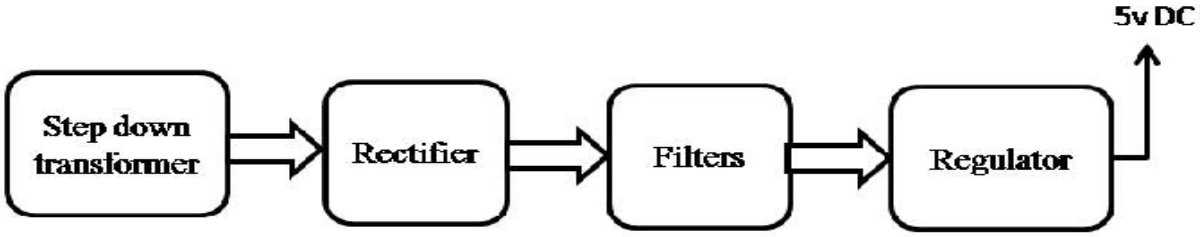
The Major Building blocks of this project are:

1. Regulated Power supply.
2. Microcontroller.
3. RFID reader.
4. RFID tag.
5. LED Indicators.
6. LCD Display with driver.
7. Crystal Oscillator.
8. Control buttons.
9. RTC module.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:



Block Diagram: