PROPRIETARY OPEN WIRELESS TECHNOLOGY FOR DIGITAL METER IN CONTROL AREA NETWORK

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ABSTRACT

In this project CAN is used which is an Asynchronous serial CSMA/CD communication protocol for microcontroller network. Supporting high level of security and is flexible which makes this task easier. CAN bus and Bluetooth are now widely used for communication purpose. A Network is formed in street or particular area using CAN protocol and then get all information in one location. It saves time and energy. Energy meter is activated automatically for the whole area. So by this project we can make a flexible Network with high performance.

1. INTRODUCTION

In the last two decades, smart metering has attracted more attention. Distribution utilities are replacing mechanical meters with smart ones and traditional meter reading is being replaced with the new smart metering approaches. Communication technology plays an important role to provide a fast, reliable and secure smart metering system. Variety of communication protocols exist for smart metering. In this paper, the combination of CAN protocol and Bluetooth protocol is proposed.

Every home should be installed the digital energy meter that will connected by using CAN area network. In that meter, one node acts as master which is interfaced with Bluetooth mote. The Bluetooth server has every home's meter readings which can be retrieved by electrical board employee. The Bluetooth server mote has a LCD display that will display the readings of every home.

2. PIC MICROCONTROLLER

Pic has 44 pins,4dummy pins are available. A B C D E port input and output pins are present. In microcontroller analog to digital converter is inbuilted. It follows UART(universal asynchronous receiver and transmitter). This microcontroller has advance features and inbuilt peripheral. 13 ADC channels and 10-bit ADC are available. .

LCD:
In recent years the LCD is finding widespread use replacing LEDs (seven-segment LEDs or other multisegment LEDs). This is due to the following reasons:

- The declining prices of LCDs.
- The ability to display numbers, characters, and graphics. This is in contrast to LEDs, which are limited to numbers and a few characters.
- Incorporation of a refreshing controller into the LCD, thereby relieving the CPU of the task of refreshing the LCD. In contrast, the LED must be refreshed by the CPU (or in some other way) to keep displaying the data.

Power supply:
A power supply provides a constant output regardless of voltage variations."Fixed" three-terminal linear regulators are commonly available to generate fixed voltages of plus 3 V, and plus or minus 5 V, 9 V, 12 V, or 15 V when the load is less than about 7 amperes.

BLOCK DIAGRAM
Home Network:
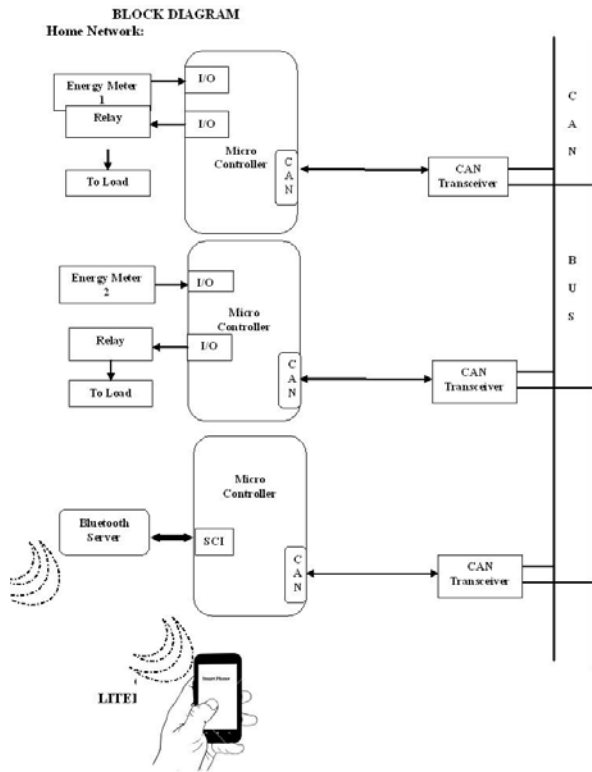
3. SERIAL PERIPHERAL INTERFACE

Serial Peripheral Interface is a simple interface which enables to communicate microcontroller and peripheral chips or intercommunicate between two or more microcontrollers. Serial Peripheral Interface bus sometimes called four wire interfaces may be used to interface such chips or devices like: LCD, sensors, memories, ADC, RTC. The range of usage is huge.

PROTEUS:

Proteus is software for microprocessor simulation, schematic capture, and printed circuit board (PCB) design. It is developed by Labcenter Electronics. Features of proteus are Automatic wire routing and dot placement/removal and Powerful tools for selecting objects and assigning their properties. Intelligent car driving using wireless sensor network project's simulation is done by proteus software

.**Proteus Out Put Diagram:**
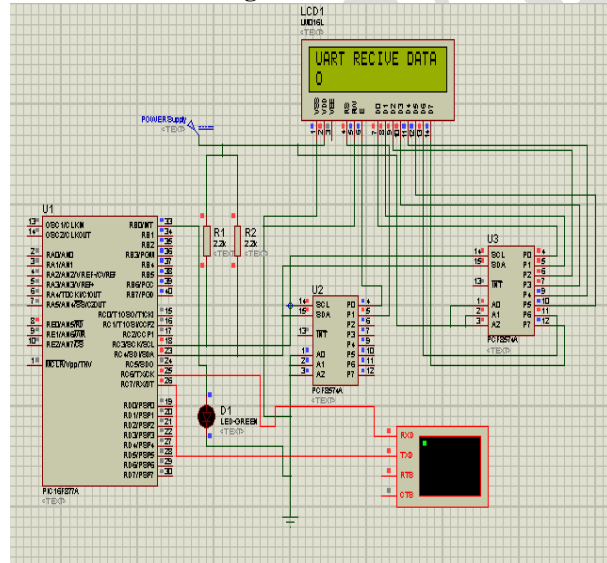
4. CONCLUSION

The power Consumed is transmitted through Bluetooth to the Microcontroller. The integrated circuits are used to transmit 10 bit data. Thus power consumed is displayed on theLCD. In the phase I project the simulation is carried out. Hardware implementation is done in phase2.

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