

Two-way Wireless Data Messaging System for Rural Areas using Zigbee Technology

The project aims in designing a system which is capable of providing wireless two-way data messaging using Zigbee technology.

The modules in the project are: a Touch screen sensor to input the data, GLCD display which displays the characters, digits and special symbols required for messaging purpose, Zigbee modules to establish wireless communication between both systems.

Touch screens provide fast access to any and all types of digital media, with no text-bound interface getting in the way. Faster input can mean better service. Using a touch interface can effectively increase operator accuracy, reduce training time, and improve overall operational efficiencies, a properly designed touch interface can improve each operator's accuracy. Touch screens are practical in automation, which has become even simpler with touch screen technology. Persons familiar with the icon system appreciate touch screens that make automation systems user friendly.

ZigBee is a wireless technology developed as an open global standard to address the unique needs of low-cost, low-power, wireless sensor networks. Zigbee is the set of specs built around the [IEEE](#) 802.15.4 wireless protocol. As Zigbee is the upcoming technology in wireless field, we had tried to demonstrate its way of functionality and various aspects like kinds, advantages and disadvantages using a small application of controlling the any kind of electronic devices and machines. The Zigbee technology is broadly adopted for bulk low battery operated based transmission over a dedicated channel.

The controlling device of the system is a Microcontroller. This system consists of two Microcontrollers on either side to which touch screen, GLCD, Zigbee modules are interfaced. The Microcontroller is programmed in such a way that the message typed by

using touch screen-GLCD on one system will be processed by the controller and transmitted through Zigbee module which will be received by the Zigbee present on other side. This received data is processed by the controller and displayed on the GLCD screen and vice versa. The Microcontroller is programmed using Embedded C language.

The main objectives of the project are:

1. Two way data messaging system.
2. Wireless transmission.
3. Usage of touch screen technology for data entry.

The project provides the following learning's:

1. Touch screen technology.
2. Zigbee Technology.
3. Interfacing touch screen to Microcontroller.
4. Interfacing Zigbee to Microcontroller.
5. GLCD screens.
6. Embedded C programming.
7. Conversion of AC supply to DC supply.
8. PCB designing.

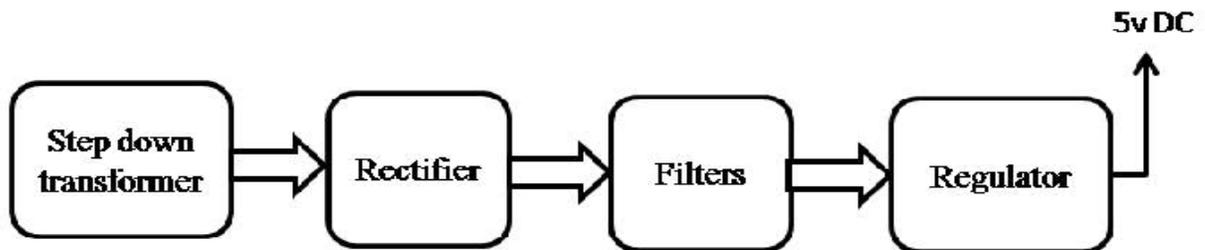
The main building blocks of the project are:

1. Regulated Power Supply.
2. Microcontroller.
3. Zigbee modules
4. Touch screen with driver.
5. Reset.
6. GLCD with driver.
7. Crystal oscillator.
8. LED indicators.

Software's used:

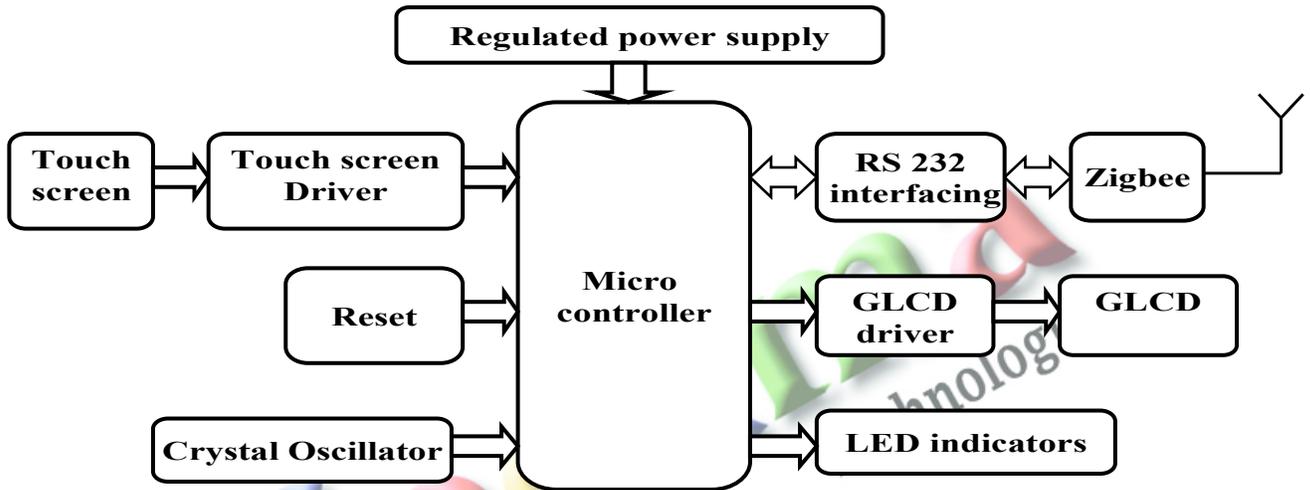
1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:



Block diagram:

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