Touch screen and Zigbee based Home automation system

The project mainly aims in designing completely wireless automated switchboard with the help of touch screen sensor. It also provides a user-friendly environment of the user to operate the devices effectively using Zigbee wireless communication. It major aims in providing a reliable system for illiterates and old people who find difficulty in operating few high-end devices like Motors, Generators and Transformers etc.

Automation is the most frequently spelled term in the field of electronics and electrical. The hunger for automation brought many revolutions in the existing technologies. One among the technologies, which had greater developments, is the touch screen sensor. These had greater importance than any other technologies due its user-friendly nature. Touch screen based devices can be easily reachable to the common man due its simpler operation, and at the same time it challenges the designers of the device. These touch screen sensors can be used as a replacement of the existing switches in industries, which produces, sparks and also results in fire accidents in few situations. Considering the advantages of touch screen sensors an advanced automation system was developed to control the equipments at homes and in industries.

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. We are operating the electrical devices using Zigbee wireless communication.

The device consists of a two microcontrollers, one is interfaced to Zigbee transmitter and some input modules, and other controller interfaced with Zigbee receiver and equipment to be controlled. So the controller can be termed as a control unit. The input module is nothing but a touch screen sensor, which takes the input from the user and provides the same to the microcontroller. Microcontroller will send the information to Zigbee receiver using Zigbee transmitter. The output module is the equipments which are to be controlled. There will be some interfacing circuit between the microcontroller and high voltage equipments. Here the microcontroller receives the input from the touch sensor and switches the device with respect to the input.

Features:

1. Touch screen based user-friendly interfacing.
2. Wireless controlling of device switching.
3. Low power consumption.
4. Controls high and low voltage devices.
5. Long life.
6. Highly sensitive.

Applications:

1. In industrial environment where combustibles are used.
2. For house hold automations.
3. In corporate sectors.

This project provides exposure to the following technologies:

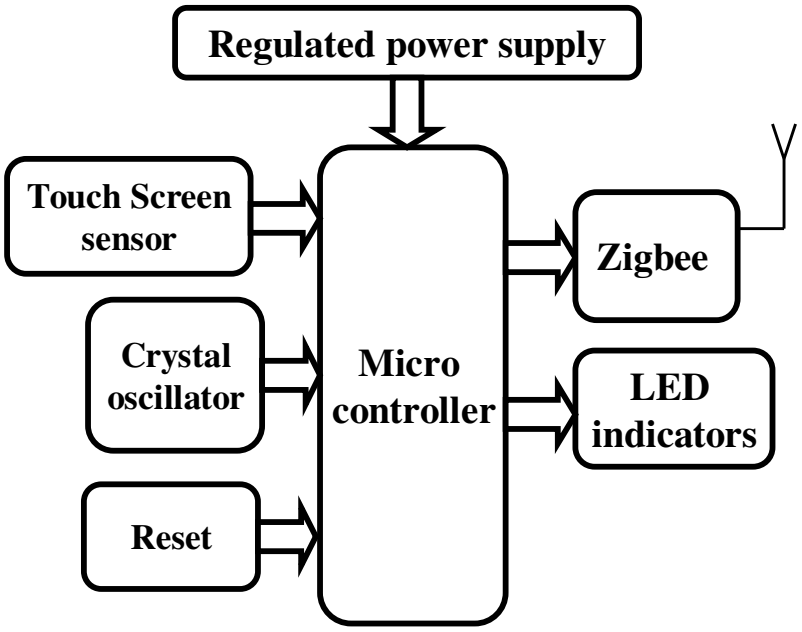
1. Touch screen sensor.
2. Interfacing sensor and microcontroller.
3. Zigbee module.
4. Embedded C programming for microcontroller.
5. Design of PCB.

The major building blocks of this project are:

1. Regulated power supply with voltage regulator.
2. Touch screen sensor.
3. Zigbee module.
4. Microcontroller.
5. Interfacing circuit.
6. Appliances to be controlled.

Block diagram:

Touch screen and Zigbee based Home automation system
1.Transmitter



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2.Receiver