MULTIPLE DEVICES CONTROLLING USING X-BEE/ZIG-BEE

ABSTRACT

The main aim of the project is to control the devices of a home or an industry from a remote place by using wireless communication of ZIGBEE.

ZIGBEE is a specification for a suite of high level communication protocols using small, low-power digital radios based on the IEEE 802.15.4-2003 standard for Low-Rate Wireless Personal Area Networks (LR-WPANs). ZIGBEE is targeted at radio-frequency (RF) applications that require a low data rate, long battery life, and secure networking. ZIGBEE protocols are intended for use in embedded applications requiring low data rates and low power consumption. ZIGBEEs current focus is to define a general-purpose, inexpensive, self-organizing mesh network that can be used for industrial control, embedded sensing, medical data collection, smoke and intruder warning, building automation, home automation, etc. The resulting network will use very small amounts of power.

The project is designed in such a way that an X-BEE transceiver will be interfaced to a PC serially using a driver IC MAX232, to input the predefined data from PC to the X_BEE module, on the transmitter side. And on the receiver side the controller will be interfaced to another X-BEE transceiver which can receive the transmitted data from the remote transceiver, and to the ac loads through relays. Whenever a predefined data is transmitted from the PC to the transceiver on the transmitter side , the same data will be wirelessly transmitted to the remote transceiver and will be fed to the controller. Now it is the task of controller to turn ON/OFF the loads through relays based on the data received.
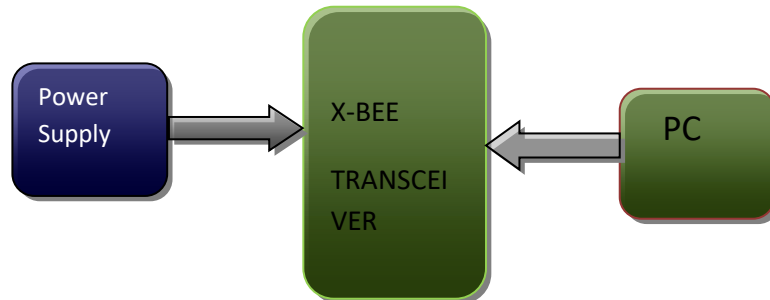
This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.
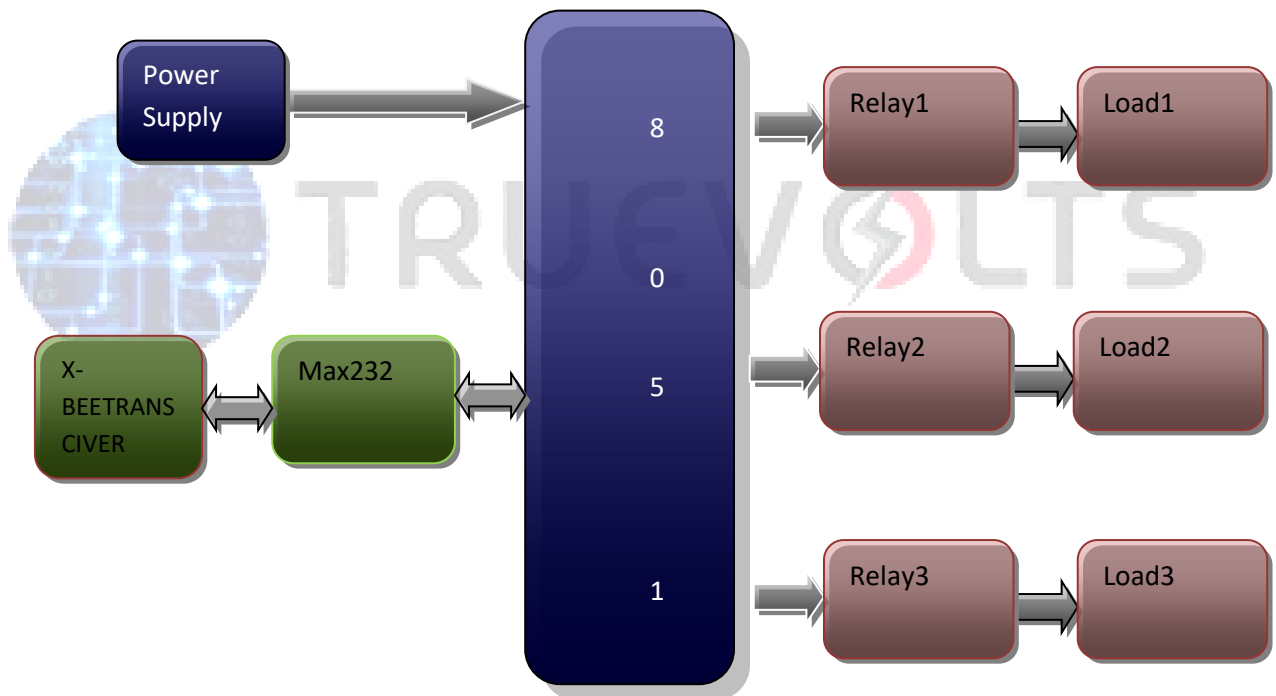
APPLICATIONS:

- Industrial applications
- Control systems

BLOCK DIAGRAM:

TRANSMITTER SECTION:

```
Power          X-BEE          PC
Supply   ───▶  TRANSCEI  ◀───
               VER
```

RECEIVER SECTION:

```
Power                    8    ──▶  Relay1  ──▶  Load1
Supply   ───▶
                         0

X-                       5    ──▶  Relay2  ──▶  Load2
BEETRANS ◀─▶  Max232 ◀─▶
CIVER
                         1    ──▶  Relay3  ──▶  Load3
```

POWER SUPPLY BLOCK DIAGRAM:

```
Step down  ─▶ Bridge    ─▶ Filter ─▶ Regulator ─▶ Output
Transformer   Rectifier
```