

AUTOMATIC PLANT IRRIGATION USING ZIGBEE

AIM:

Design and Development of Automatic plant irrigation using zigbee.

PURPOSE:

Irrigation is source of any kind of food. Lot of manual process in agriculture now a days and it is very difficult to spend all the time. Also production cost increased day by day because of lot of manual power. Bringing any smart systems will reduce manual power. Here we propose automatic plant irrigation using zigbee.

DESCRIPTION:

This project includes Zigbee module (HC12), which is connected to Arduino through UART interface. Soil moisture sensor connected to Arduino digital pin. Temperature Sensor (LM35) connected to Arduino analog pin. Two relays controls DC fan and AC water pump.

WORKING:

Here we installed this system in agriculture form. Temperature sensor reads temperature of environment. Soil moisture sensor reads moisture condition of soil. All this information transmitted to another Zigbee which is at PC side. DC fan will be ON when temperature more than 45 degrees and AC motor pump will be ON when soil moisture in dry condition.

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Zigbee Module	:	HC12 - 433MHZor 2.4Ghz
Temperature Sensor	:	LM35
Soil Moisture Sensor	:	Leaded type
Relays	:	12V DC
Fan	:	12V DC
Water Pump	:	AC 230V AC
Buzzer	:	5V DC
Power Source	:	12v 2 DC Adaptor

SOFTWARE:

Arduino IDE

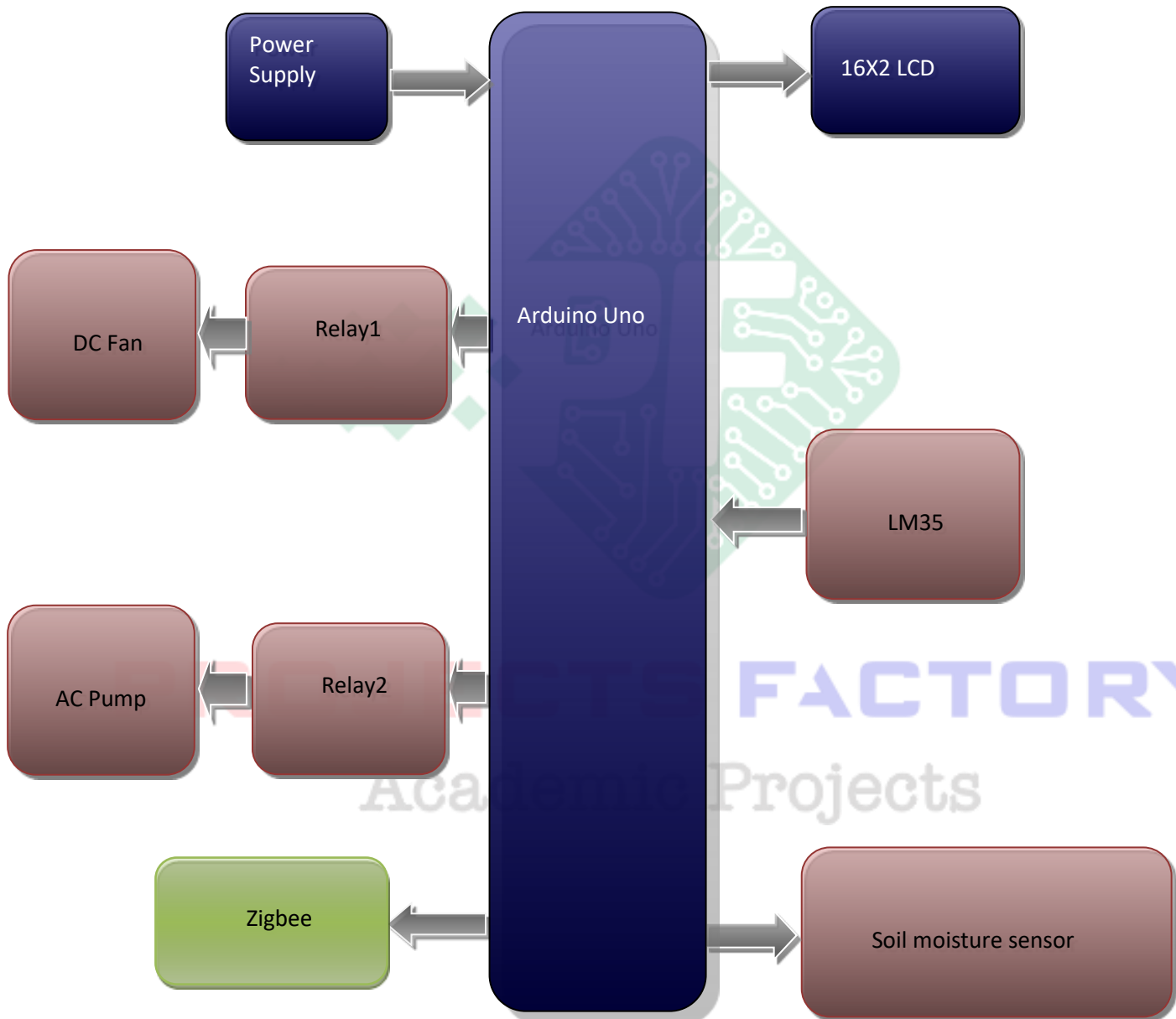
Proteus based circuit diagram

APPLICATIONS:

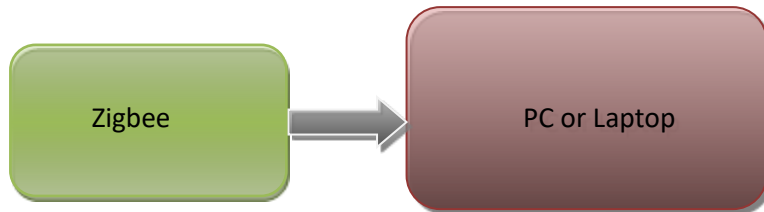
- Agriculture
- Hydroponics

BLOCK DIAGRAM:

Transmitter:



Receiver:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered Zigbee (433Mhz or 2.4Ghz – HC12) module interfacing
- LM35 and Spoil Moisture sensors interface
- DC fan and AC pump motor interface

PROJECTS FACTORY
Academic Projects