

IOT BASED AUTOMATIC WASTE SEGREGATION AND MONITORING SYSTEM

AIM:

Design and development of IOT based automatic waste segregation and monitoring system.

PURPOSE:

Growth of urbanization increased rapidly and it creates lot of issues. One of the major issues is waste management. Especially in India waste management is difficult task because of high population and population density. It is very expensive to manage waste from collection from each homes and apartments. Because at people drop waste in bins without segregation. Technology will help us to solve this problem. A smart system that will separate wet, dry and metals and segregate in respective tubs. This system needs to install at homes, apartments and road side waste bins. Also, this system will have IOT interface, so that we can collect based on information. Here project title is IOT based automatic waste segregation and monitoring system using Arduino microcontroller.

DESCRIPTION:

IOT module (ESP8266) interfaced with Arduino UART port. Two servo motors connected to PWM pins of Arduino. IR sensor, Moisture sensor and Metal sensor interfaced to Arduino digital input pins.

WORKING:

Servo motors arranged in two directional models and it will easily drop waste based on segregation. This model has collecting tub and it will have IR sensor, Metal sensor and moisture sensor. When we drop waste into tub, first IR sensor will activate then Arduino detects type of waste based on which sensor activated. After, detecting waste type second servo motor will rotate particular position and drop with the help of first servo motor. This information will update to IOT server through ESP8266 (IOT) module

TECHNICAL SPECIFICATIONS:

HARDWARE:

Microcontroller	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16x2 LCD display
IOT module	:	ESP8266
Relay	:	12vDC
Servo Motor Power	:	LM2596
IR sensor	:	5vDC
Moisture sensor	:	5vDC resistive type
Metal Sensor	:	Inductive type
Servomotor	:	MG996R
Buzzer	:	5vDC
Power Source	:	12v 1 amp DC Adaptor

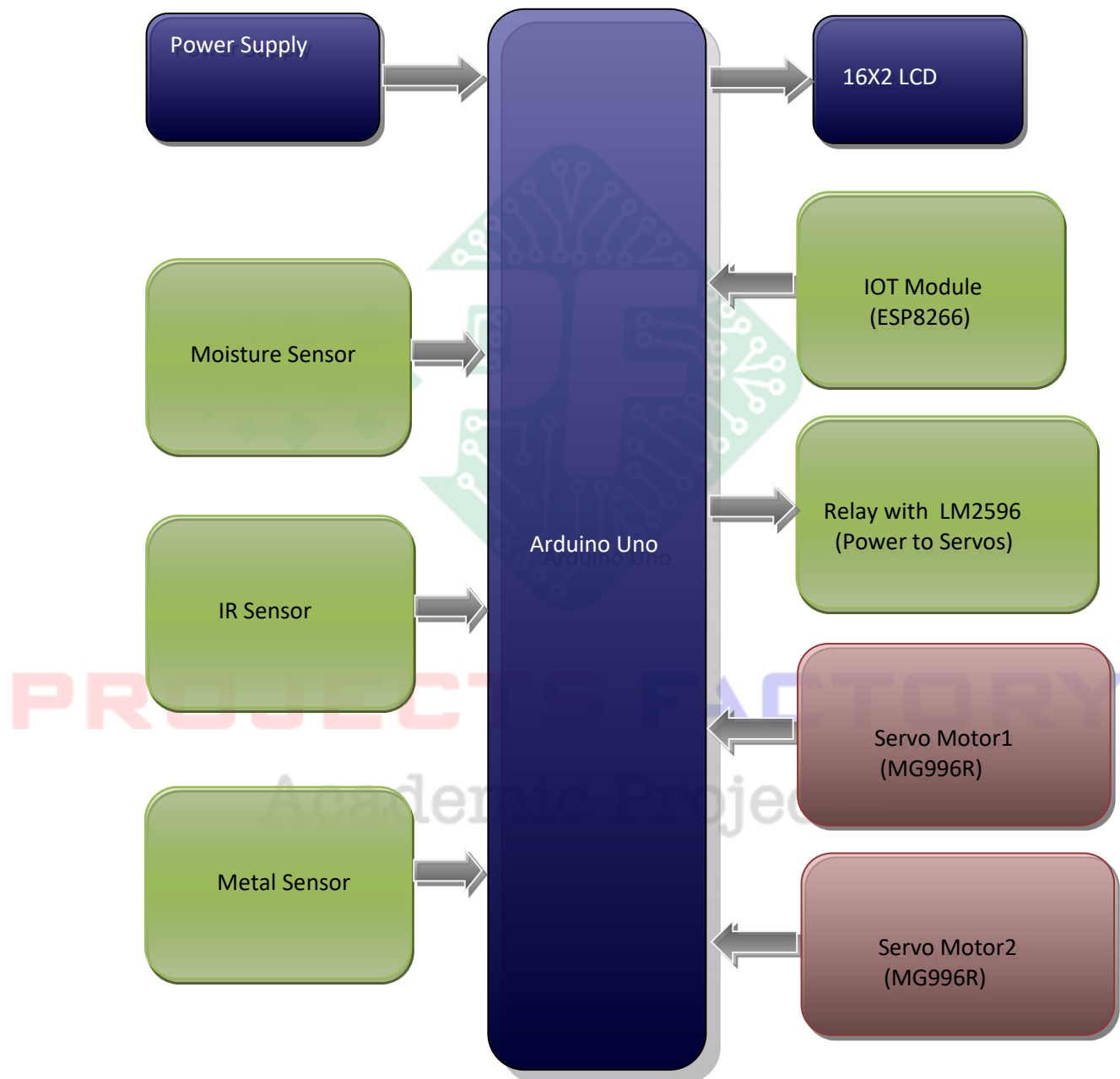
SOFTWARE:

Arduino IDE
Proteus based circuit diagram

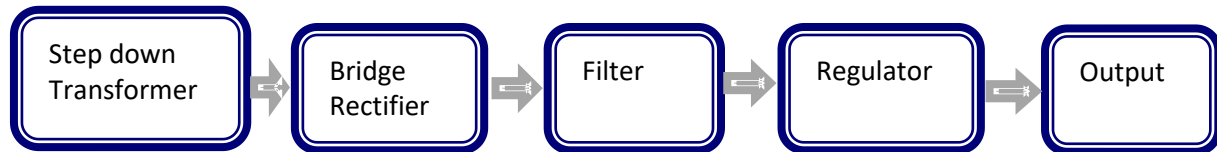
APPLICATIONS:

- Smart waste management
- Garbage waste segregation
- IOT based smart bin
- IOT based waste management
- IOT based waste segregation system

BLOCK DIAGRAM:



POWER SUPPLY BLOCKDIAGRAM:



INTERFACES COVERED:

- We have covered Arduino interface and code
- Servo Motor Interface
- IOT module interface through serial communication
- Moisture, Metal and IR sensors Interface
- Servo motor requires more power, so that we will supply power from LM2596 regulator to the servo motors through the relay.

PROJECTS FACTORY
Academic Projects