```
#include<LiquidCrystal.h>

LiquidCrystal lcd(2,3,4,5,6,7);

int trigPin = 12;

int echopin = 13;

float travelTime;

float level;

float speed;//miles per hour

float readStatusofContainer(int trigPin,int echoPin)

{

//sending ping

digitalWrite(trigPin,LOW);

delayMicroseconds(100);

digitalWrite(trigPin,HIGH); //returns round trip time of container status

delayMicroseconds(10);

digitalWrite(trigPin,LOW);

return pulseln(echoPin,HIGH);
```

```
// * DC Motor

int motorPin = 8;

//* PIR Sensor

int pirPin = 9;

// * Light

int lightPin = 10;

//* Gas Sensor

int gaspin = A0;

int threshold = 400;

// * Piezo *

int buzzpin = 11;
//* **LED***
 int ledPin = 0;
void setup()
{
Serial.begin(9600);



//* LCD Display *
```

```
lcd.begin(16,2);

//* Ultrasonic Sensor
 pinMode(trigPin, OUTPUT);
pinMode(echopin, INPUT);

//* DC Motor
pinMode(motorPin, OUTPUT);

//* PIR Sensor *

pinMode(pirPin, INPUT);
//* Light"

pinMode(lightPin, OUTPUT);

//* Gas Sensor

pinMode(gasPin,INPUT);

//* Piezo

pinMode(buzzPin, OUTPUT);

//* LED

pinMode(ledPin, OUTPUT);
```

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```
void loop()

//* Trash can monitoring

//Trash can height 5 inches

travelTime = readStatusofContainer(trigPin,echoPin);//microseconds

travelTime = travelTime/1000000;//seconds

travelTime = travelTime/3600;//hours

speed = 60.0;//miles per hour(86.4 for 5 inches)

level = speed * travelTime://miles

level = level/2;//because travelTime is round trip time

level = level * 63360;//inch

if(level <= 4.5)

//dispaly status

lcd.clear();
```

```
lcd.setCursor(0,0);

lcd.print("Trash Level:");

lcd.setCursor(0,1);

lcd.print(level);

lcd.print(" inches");

delay(100);

else

//dispaly status

lcd.clear();

lcd.setCursor(0,0);

lcd.print("Trash is full");
```

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```
lcd.setCursor(0,1);

lcd.print(level);
```

```
lcd.print(" inches away");

delay(100);

}

//* Water level monitoring

// Water tank height 20 inches

travelTime = readStatusofContainer(trigPin,echoPin);//microseconds

travelTime = travelTime/1000000;//seconds travelTime = travelTime/3600;//hours

speed = 240.1;//miles per hour(345.3 for 20 inches)

level = speed * travelTime;//miles

level = level/2;//because travelTime is round trip time

level = level * 63360;//inch

if(level <= 19.0)

//dispaly status and Turn on motor

digitalWrite(motorPin,HIGH);

lcd.clear();
```

lcd.setCursor(0,0);

lcd.print("Level: Motor");

lcd.setCursor(0,1);

lcd.print(level);

lcd.print(" in On");

delay(100);

else

{

lcd.clear();

//dispaly status and Turn off motor digitalWrite(motorPin,0); lcd.setCursor(0,0); lcd.print("Level: Motor"); lcd.setCursor(0,1); delay(100);

lcd.print(level);

lcd.print(" in Off");

}

Motion Detection if(digitalRead(pirPin)==HIGH) digitalWrite(lightPin, HIGH); else digitalWrite(lightPin, LOW); delay(100);

Detects flammable gases if(analogRead(gasPin) >= threshold)

```
digitalWrite(ledPin,HIGH); digitalWrite(buzzPin,HIGH);

}

else

digitalWrite(ledPin,LOW); digitalWrite(buzzPin,LOW); }

delay(100);

}
```