

APPENDIX

```
#include <Servo.h> //library dari Motor Servo

#include <SoftwareSerial.h> //library dari Module GSM SIM800L

Servo servo;

#define SIM800_TX_PIN 9

#define SIM800_RX_PIN 11

SoftwareSerial serialSIM800(SIM800_TX_PIN,SIM800_RX_PIN);

int angle = 10;

// defines pins numbers
const int trigPin = 5;
const int echoPin = 6;

// defines variables
long duration;
int distance;

const int IRSensor= 2;

int inputVal = 0;

const int threshold = 2000; //To determine how many seconds are
classified as a full barrel

void setup() {

    servo.attach(8);

    servo.write(angle);

    pinMode(IRSensor,INPUT); //Pin 2 is connected to the output of
infrared sensor

    pinMode(trigPin, OUTPUT); // Sets the trigPin as an Output
```

```

pinMode(echoPin, INPUT); // Sets the echoPin as an Input

Serial.begin(9600);

while(!Serial);

Serial.println("Inisialisasi modul SIM800L");

serialSIM800.begin(9600);

delay(1000);

Serial.println("Kirim SMS..."); //Set text mode for SMS sending
serialSIM800.write("AT+CMGF=1\r\n");
delay(1000);
Serial.begin(9600); // Starts the serial communication
while(!Serial);
}
void loop() {
// Clears the trigPin
digitalWrite(trigPin, LOW);
delayMicroseconds(2); //Sets the trigPin on HIGH state for 10
micro seconds

digitalWrite(trigPin, HIGH);

delayMicroseconds(10);

digitalWrite(trigPin, LOW);

delay(1000); // Reads the echoPin, returns the sound wave travel time in
microseconds

duration = pulseIn(echoPin, HIGH);

// Calculating the distance

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distance= duration*0.034/2;

// Prints the distance on the Serial Monitor

Serial.print("Distance: ");

Serial.println(distance);

delay(10);

if(distance<30)

{

servo.write(180);

delay(1000);

}

else

{

servo.write(0);

}

if (digitalRead(2) == HIGH)

{

serialSIM800.write("AT+CMGS=\"082322758702\"\r\n");

delay(1000);

serialSIM800.write("SAMPAH PENUH GAES");

delay(1000);

serialSIM800.write((char)26); //CTRL-Z

delay(1000);

Serial.println("SMS Terkirim!");

}

}
```

```
else  
{  
Serial.println("Sampah Belum Penuh!");  
}  
}
```





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Report #11011338

CHAPTER 1 Introduction Background Research on automatic smart bins is done because there are still many and often we meet people who are still fond of throwing trash in any place. The design of this Arduino Uno-based smart trash can requires several materials such as hardware and software. The hardware used includes Ultrasonic Sensor, Infra Red Sensor, Breadboard, Jumper Cable, Arduino Uno, Servo Motor and SIM800 GSM Module, trash bins, tools needed as assistive devices and Arduino IDE as software. The first in conducting this research is to test the ultrasonic sensor and servo motor which is used as a parameter to open and close the trash can with a distance that has been determined on the ultrasonic sensor. After that, testing the IR sensor that detects the entry of an item into the trash and as a parameter if the trash can is full with a certain distance for a few seconds. Then the next step is checking the electrical power on the breadboard and devices that have been installed with a multimeter. The breadboard is placed under the trash can, the ultrasonic sensor is in front of the trash bin to facilitate access and the IR sensor is in the middle of the trash can. After all sensors and servo have been installed in the trash, the overall test is done well. In testing the GSM Module SIM 800L is done by using GSM SIM 3. In addition, so that the module can provide or send sms to the