

LAMPIRAN

1. Bentuk alat

Pengujian Pertama Sistem Keseluruhan



Pengujian Kedua Sistem Keseluruhan



Pengujian Ketiga Sistem Keseluruhan



Pengujian Keempat Sistem Keseluruhan



Pengujian Kelima Sistem Keseluruhan



2. Kode program Arduino

```
#include <LiquidCrystal_I2C.h> // Library LCD
#include "HX711.h" // Library modul HX711 load cell
#include <Servo.h> // Library servo
#include "DHTesp.h" // Library DHT11
#define DOUT // Pin DOUT load cell
#define CLK // Pin SCK load cell
HX711 Loadcell1; // Deklarasi modul HX711 load cell atas
HX711 Loadcell2; // Deklarasi modul HX711 load cell bawah
float calibration_factor1 = 934; // Nilai kalibrasi load cell atas
float calibration_factor2 = 817; // Nilai kalibrasi load cell Bawah
int lcdColumns = 16; // LCD
int lcdRows = 2; // LCD
LiquidCrystal_I2C lcd(0x27, lcdColumns, lcdRows); // LCD
```

```
Servo nasril; // Servo
int Dc = D3; // Pin motor DC
int hitter = D4; // Pin relay hitter
DHTesp dht;
void setup() {
  Serial.begin(9600);
  pinMode (Dc, OUTPUT); // Deklarasi pin motor dc
  pinMode(hitter, OUTPUT); // Deklarasi pin relay hiter
  Loadcell1.begin(D6, D7); // Pin DOUT, SCK load cell atas
  Loadcell1.set_scale(calibration_factor1);
  Loadcell1.tare();
  Loadcell2.begin(D0, D8); // Pin DOUT, SCK load cell bawah
  Loadcell2.set_scale(calibration_factor2);
  Loadcell2.tare();
  lcd.init(); // Deklarasi LCD
  lcd.backlight();
  nasril.attach(D5); // Pin servo
  nasril.write(0); // Posisi servo awal
  digitalWrite(hitter, HIGH); // Relay hitter mati
  digitalWrite(Dc, LOW); // Motor DC mati
  String thisBoard = ARDUINO_BOARD;
  dht.setup(3, DHTesp::DHT11);
}
void loop() {
  delay(10000);
  long reading1 = Loadcell1.get_units(10); // Baca berat load cell atas
```

```
lcd.setCursor(0, 0); // Tampilan LCD
lcd.print("berat awal:");
lcd.print(reading1);
delay(3000);
nasril.write(180); // Servo buka
delay(3000); // Delay 3 detik
nasril.write(0); // Servo tutup
delay(3000); // Delay 3 detik
digitalWrite(hitter, LOW); // Relay hitter hidup
digitalWrite(Dc, HIGH); // Motor DC hidup
delay(3500); // Delay 3,5 detik
digitalWrite(Dc, LOW); // Motor DC mati
delay(5000); // Delay
delay(dht.getMinimumSamplingPeriod());
float temperature = dht.getTemperature();
delay(500);
lcd.clear(); // Tampilan di LCD di hapus
delay(200); // Delay 2 detik
lcd.setCursor(0, 0); // Tampilan LCD
lcd.print("Suhu:");
lcd.print(temperature);
delay(3000);
digitalWrite(Dc, HIGH); // Motor DC hidup
delay(7000); // Delay 7 detik
digitalWrite(Dc, LOW); // Motor DC mati
digitalWrite(hitter, HIGH); // Relay hitter mati
```

```
delay(5000); // Delay 5 detik

long reading2 = Loadcell2.get_units(10); // Baca berat load cell bawah

lcd.clear(); // Tampilan di LCD di hapus
delay(2000); // Delay 2 detik
lcd.setCursor(0, 0); // Tampilan di LCD
lcd.print("berat awal:");
lcd.print(reading1);
lcd.setCursor(0, 1);
lcd.print("Berat akhir :");
lcd.print(reading2);
delay(5000);
lcd.clear();
delay(1000);
}
```