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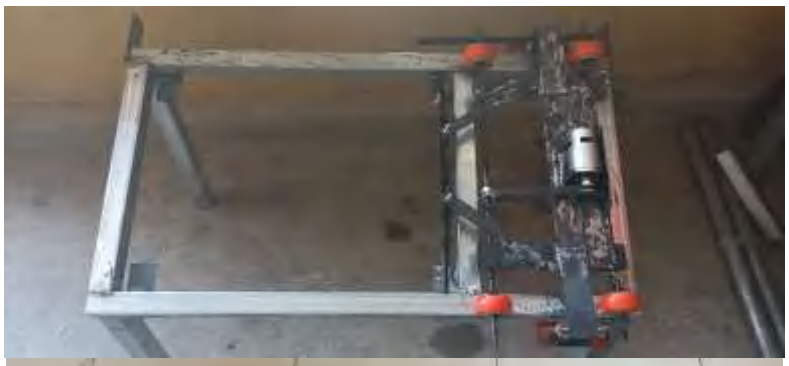
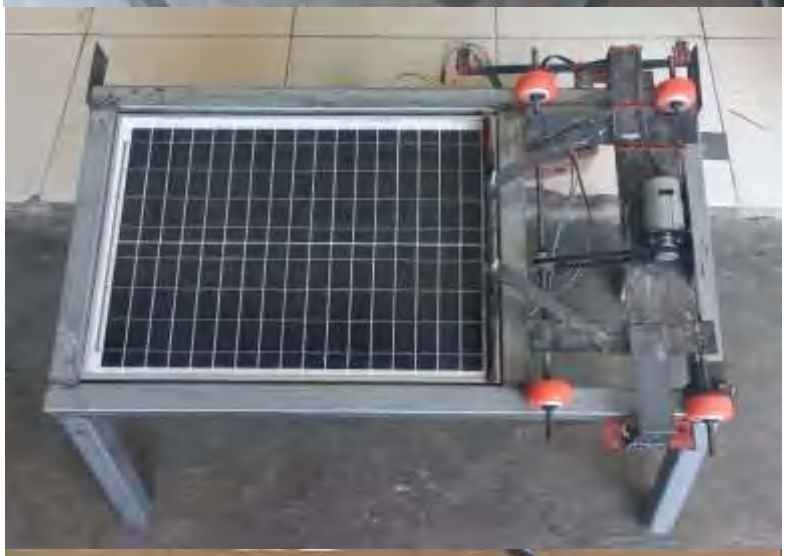
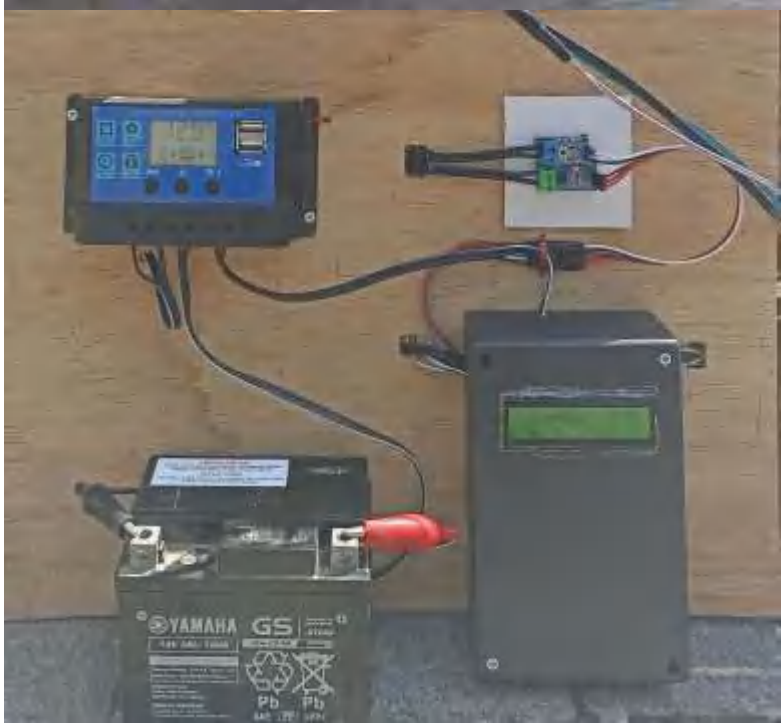
LAMPIRAN

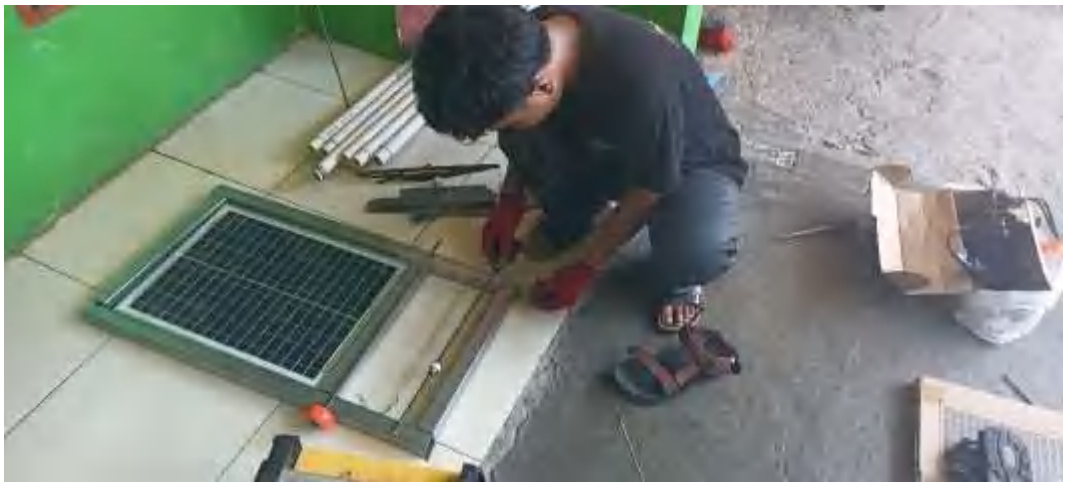
1. Lampiran 1: Foto Alat

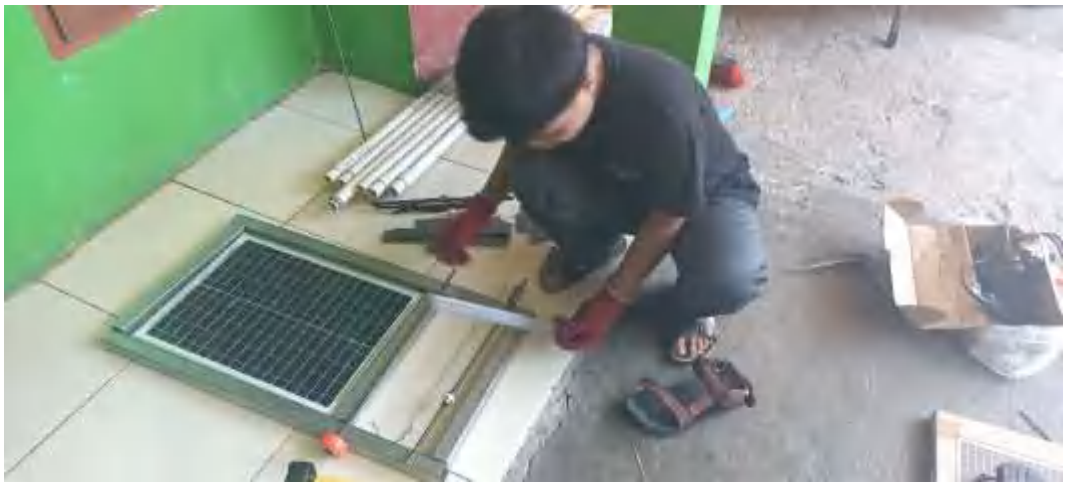


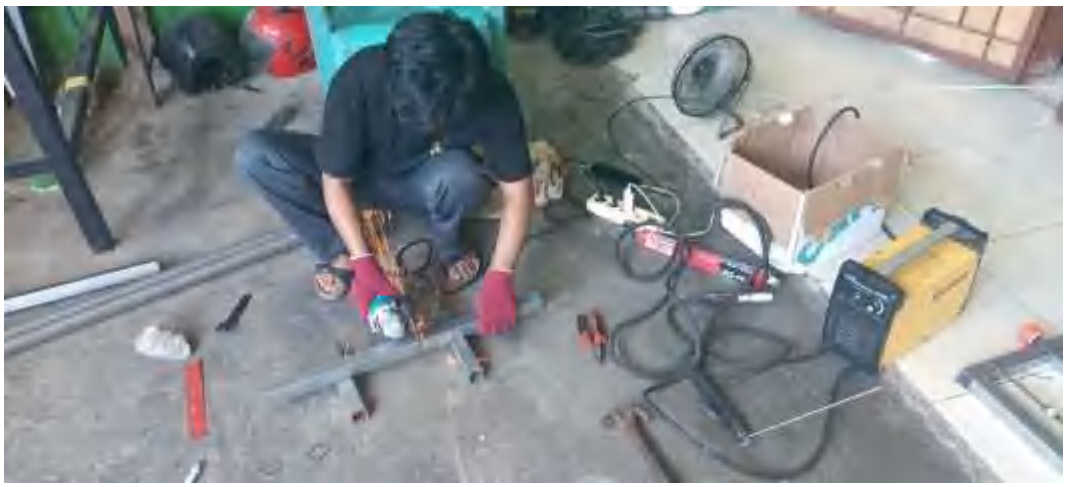


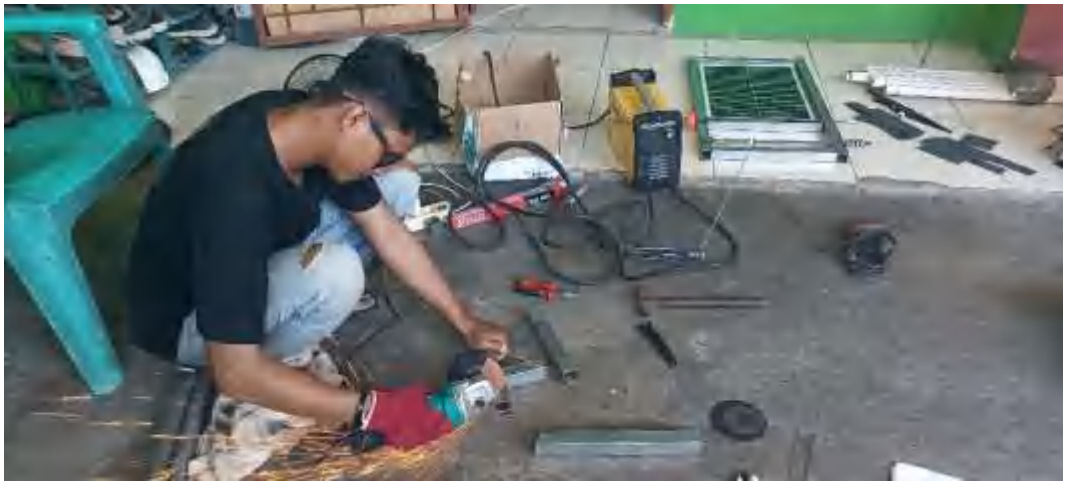


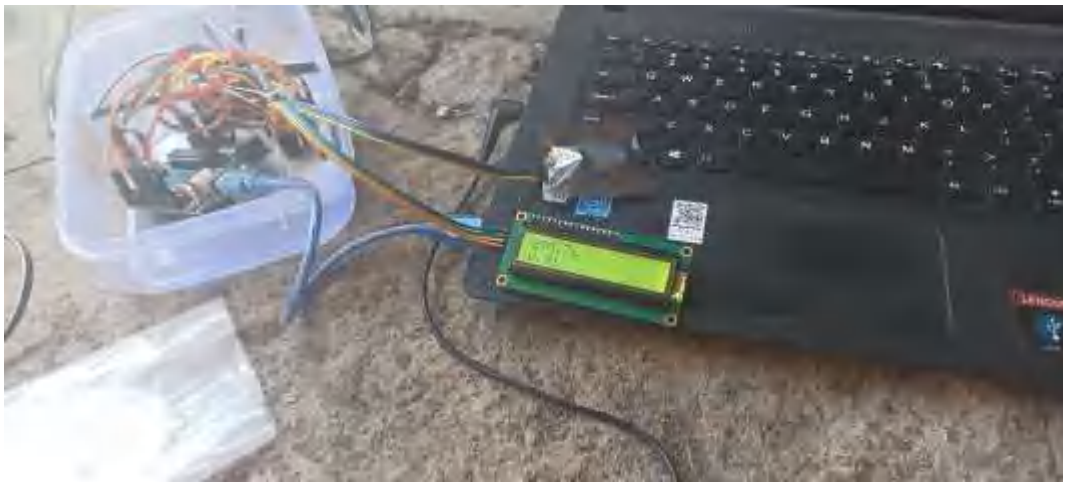
2. Lampiran 2: Foto Pengerjaan dan Pengambilan Data

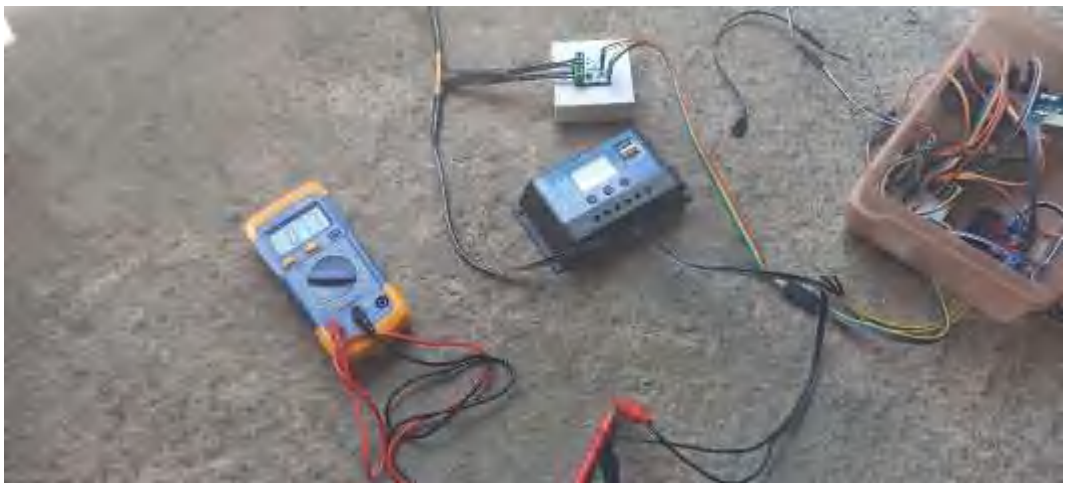












3. Lampiran 3: Kode Program

```
#include <LiquidCrystal_I2C.h>
        <Wire.h>
        ystal_I2C lcd(0x27,16,2);
```

```
#define BLYNK_PRINT Serial
#define BLYNK_TEMPLATE_ID           "TMPL6nW-x-C0F"
#define BLYNK_TEMPLATE_NAME         "Rain"
#define BLYNK_AUTH_TOKEN            "MO9xMwbQ-IJ2fcuIZ5iukwt1zw-
cuAR0"

#include <WiFi.h>
#include <WiFiClient.h>
#include <BlynkSimpleEsp32.h>
char ssid[] = "Jeff";
char pass[] = "2sampai9";

const int enablePin1 = 32;
const int enablePin2 = 14;
const int motorPin1 = 33;
const int motorPin2 = 25;
const int motorPin3 = 26;
const int motorPin4 = 27;
const int limitSwitchReversePin = 16;
const int limitSwitchOffPin = 17;
unsigned long motorStartTime = 0;
const unsigned long offSwitchDelay = 3000;
bool motor1 = false;
bool motor2 = false;

#define analogInput1 36
#define analogInput2 39
#define analogInput3 34
#define analogInput4 35

float a, p, r, c, p, v
float power;
float power2;
                ent;


                p(){
                egin(115200);
```

```
  Blynk.begin(BLYNK_AUTH_TOKEN, ssid, pass);

  Wire.begin();
  lcd.begin();
  lcd.backlight();

  pinMode(analogInput1, INPUT);
  pinMode(analogInput2, INPUT);
  pinMode(analogInput3, INPUT);
  pinMode(analogInput4, INPUT);

  pinMode(enablePin1, OUTPUT);
  pinMode(enablePin2, OUTPUT);
  pinMode(motorPin1, OUTPUT);
  pinMode(motorPin2, OUTPUT);
  pinMode(motorPin3, OUTPUT);
  pinMode(motorPin4, OUTPUT);
  pinMode(limitSwitchReversePin, INPUT_PULLUP);
  pinMode(limitSwitchOffPin, INPUT_PULLUP);
}

BLYNK_WRITE(V0){
  state = param.asInt();
  }

void loop(){
  a = (analogRead(analogInput1)/620.454545);
  p = ((a*a)/69.444);
  r = (p/0.000270000001);

  c = (0.0037 * analogRead(analogInput2)) - 10.389;
  v = (0.0057 * analogRead(analogInput3)) - 4.7152;

  c * v;
  = (power)/0.15435;
  = (power2/r)*100;
```

```
w= (0.3448 * w analogRead(analogInput4);) - 51.724;

limit2 = digitalRead(limitSwitchOffPin);
limit1 = digitalRead(limitSwitchReversePin);

if ( r  < 1000 && percent < 10.00 && !motor1 && !motor2) {
  analogWrite(enablePin1, 200);
  analogWrite(enablePin2, 255);
  digitalWrite(motorPin1, HIGH);
  digitalWrite(motorPin2, LOW);
  digitalWrite(motorPin3, LOW);
  digitalWrite(motorPin4, HIGH);
  motor1 = true;
  motor2 = true;
  motorStartTime = millis();
  delay(200);}

if (state == 1 && !motor1 && !motor2) {
  analogWrite(enablePin1, 200);
  analogWrite(enablePin2, 255);
  digitalWrite(motorPin1, HIGH);
  digitalWrite(motorPin2, LOW);
  digitalWrite(motorPin3, LOW);
  digitalWrite(motorPin4, HIGH);
  motor1 = true;
  motor2 = true;
  motorStartTime = millis();
  delay(200);}

if (digitalRead(limitSwitchReversePin) ==LOW && motor1) {
  analogWrite(enablePin1, 230);
  digitalWrite(motorPin1, LOW);
  digitalWrite(motorPin2, HIGH);
          200);}

        lRead(limitSwitchOffPin) == LOW && motor1 && motor2 && (millis()
        artTime >= offSwitchDelay)) {
```

```
    digitalWrite(enablePin1, LOW);
    digitalWrite(enablePin2, LOW);
    digitalWrite(motorPin1, LOW);
    digitalWrite(motorPin2, LOW);
    digitalWrite(motorPin3, LOW);
    digitalWrite(motorPin4, LOW);
    motor1=false;
    motor2=false;
    delay(200);}

  lcd.setCursor(0,0);
  lcd.print("Current: ");
  lcd.setCursor(8,0);
  lcd.print(c2);
  lcd.print(" A");
  lcd.setCursor(0,1);
  lcd.print("Voltage: ");
  lcd.setCursor (8,1);
  lcd.print(v2);
  lcd.print(" V");
  Blynk.virtualWrite(V1, r);
  Blynk.virtualWrite(V2, c2);
  Blynk.virtualWrite(V3, v2);
  Blynk.virtualWrite(V4, power);
  Blynk.virtualWrite(V5, percent);
  Blynk.virtualWrite(V6, w2);
  Blynk.run();
  delay (1000);
}
```