

## Daftar Pustaka

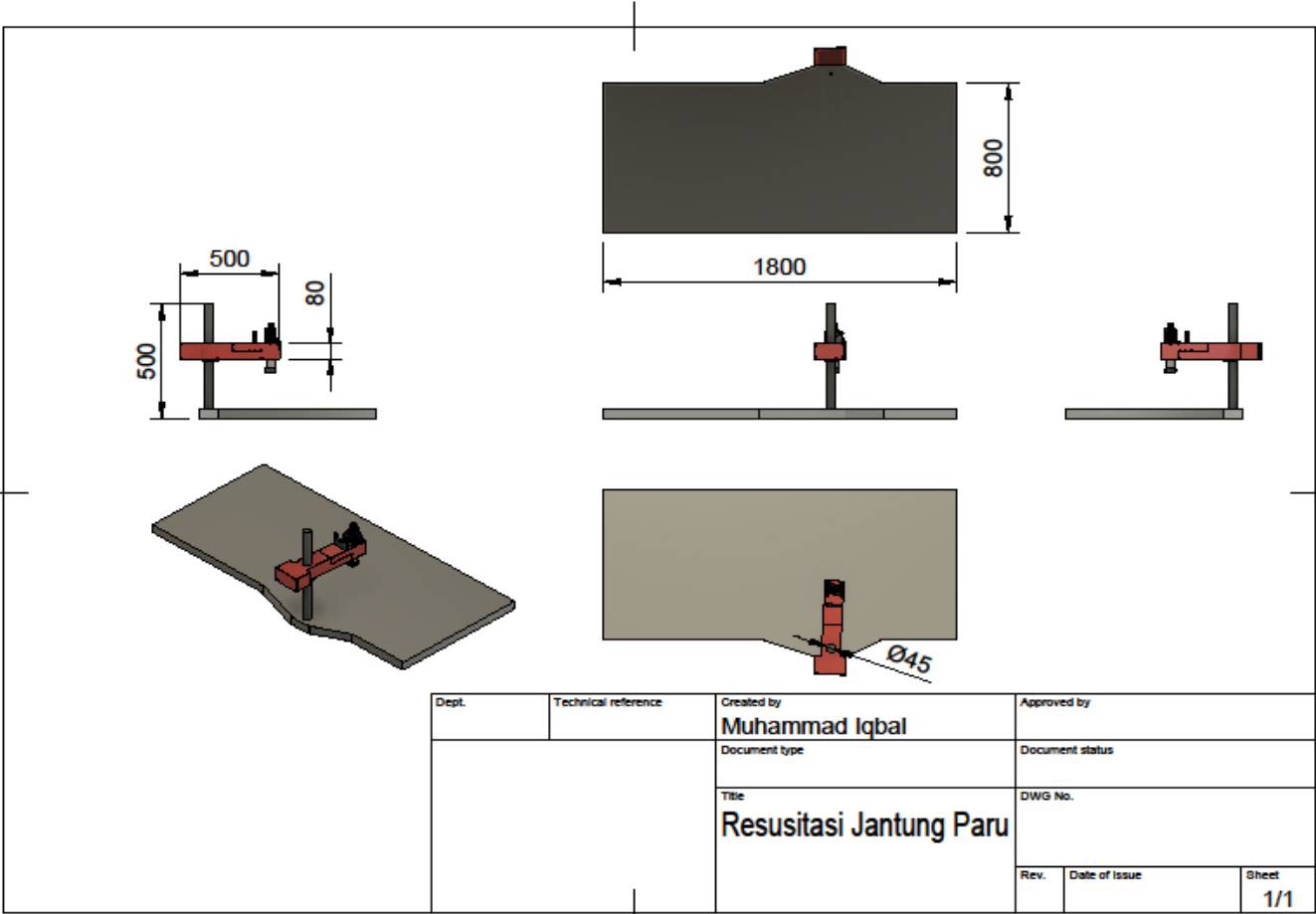
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- Joko Tri Atmojo<sup>1</sup> \*, Dewi Arradini<sup>2</sup>, Ernawati<sup>3</sup>, Aris Widiyanto<sup>1</sup>, Aquartuti Tri Darmayanti<sup>4</sup> RESUSITASI JANTUNG PARU DI ERA PANDEMI COVID-19 *Jurnal Keperawatan* Volume 12 No 3, Hal 355 - 362, September 2020
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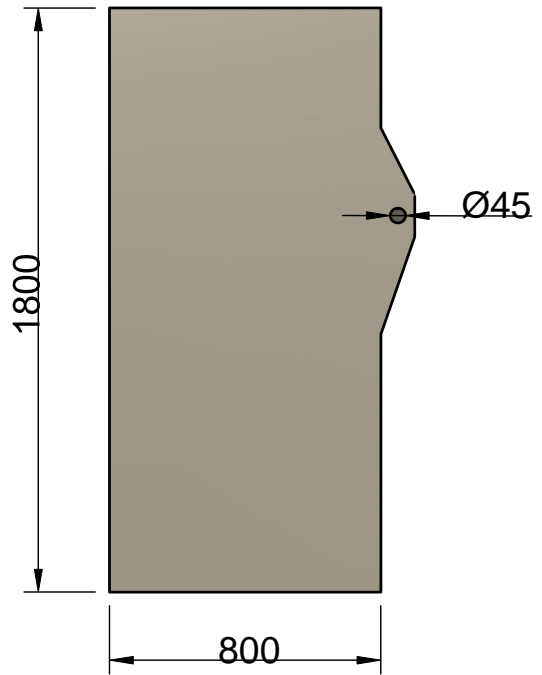
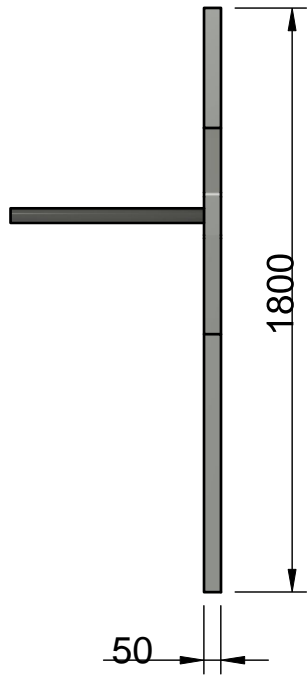
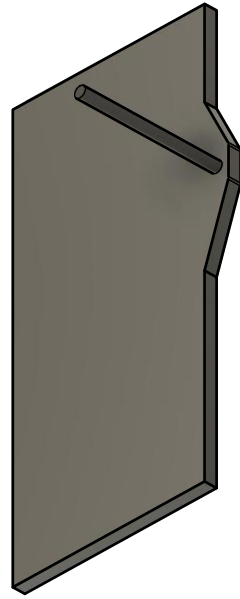
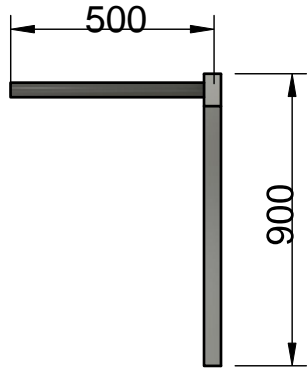
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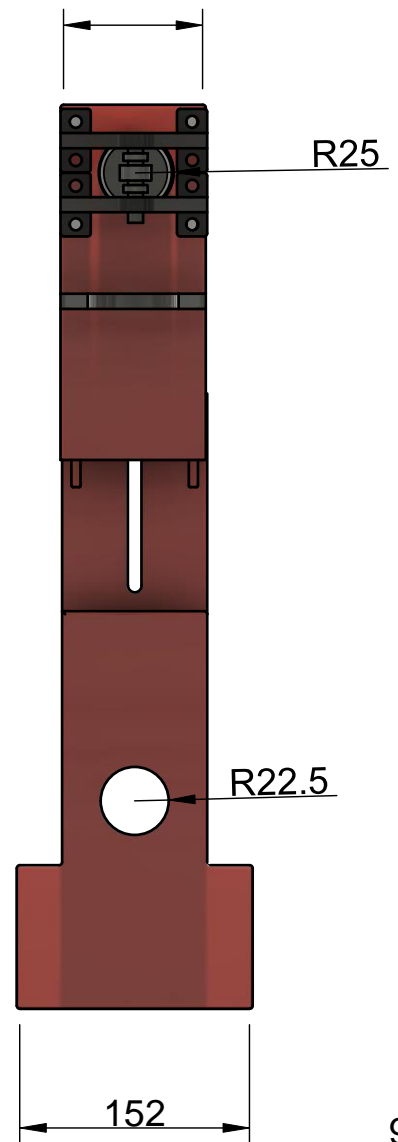
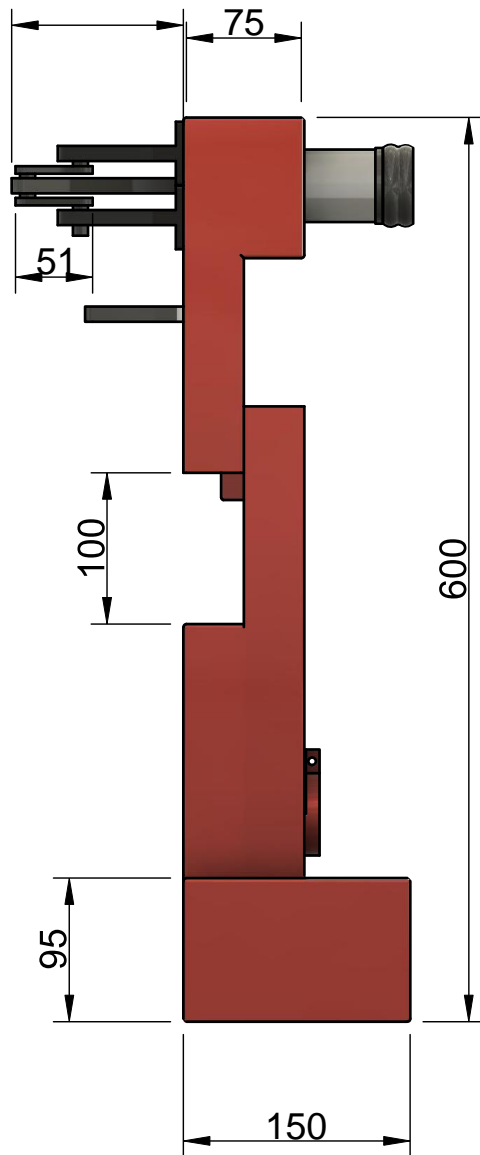
**Lampiran**

**Lampiran 1. Desain Resusitasi Jantung Paru**



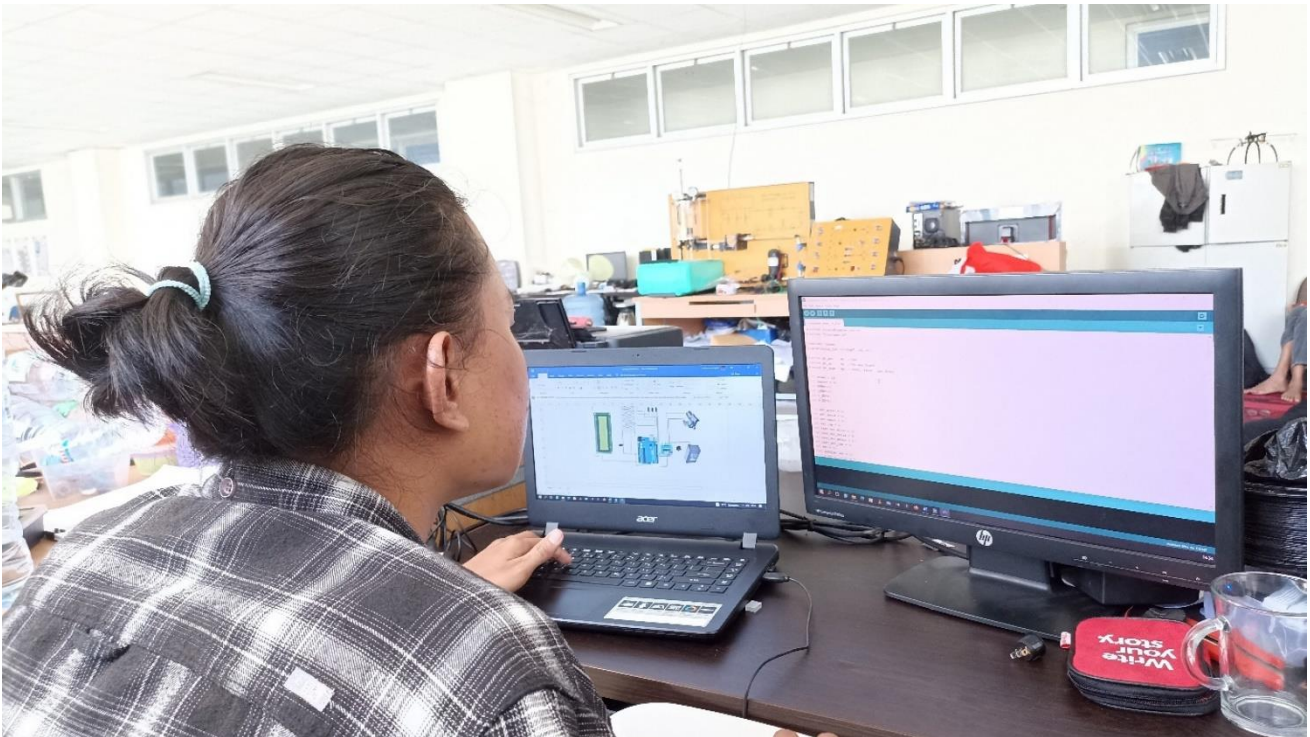


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		Document type		Document status
		Title <b>alas</b>		DWG No.
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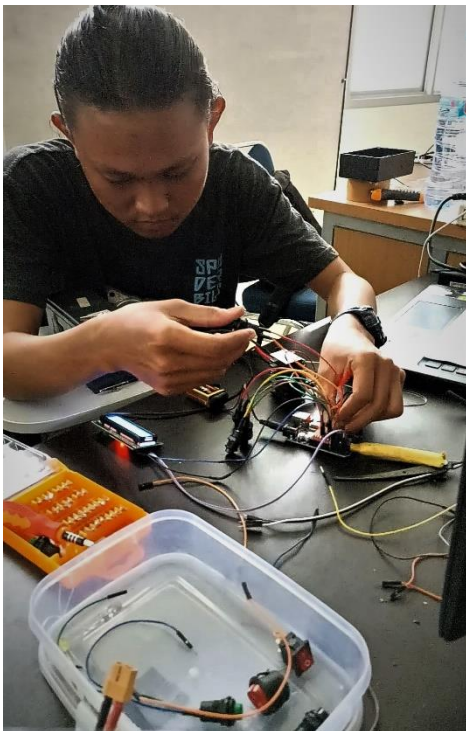


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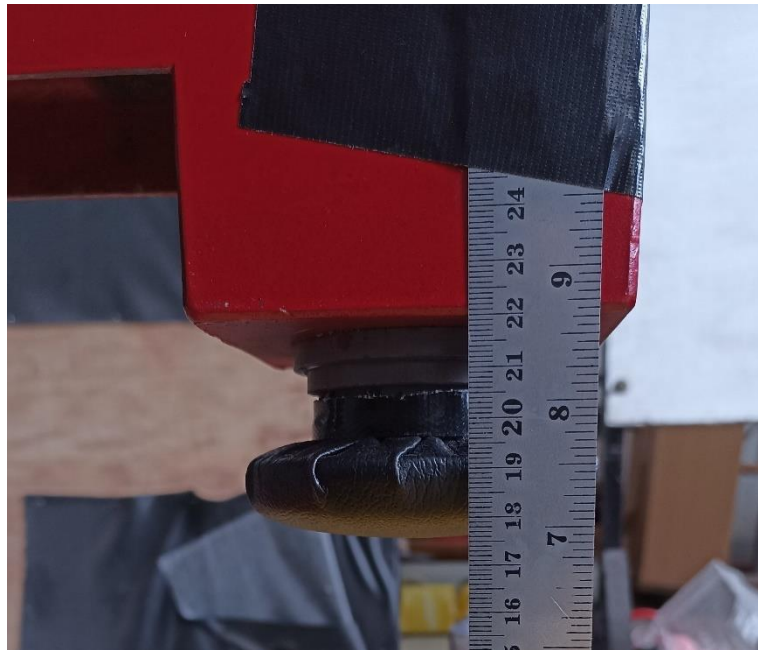
## Lampiran 2. Membuat kode perintah



## Lampiran 3. Pembuatan dan pemasangan rangkaian kelistrikan



**Lampiran 4.** Mengukur kedalaman pada saat melakukan RJP



**Lampiran 5.** Mengukur kecepatan motor menggunakan *tachometer*



**Lampiran 7.** Mengukur tegangan yang masuk ke motor menggunakan multimeter



**Lampiran 6.** Mengukur kekuatan penekanan menggunakan timbangan





## Lampiran 8. Percobaan RJP



## Lampiran 9 Kode program resusitasi jantung paru

```
#include <LiquidCrystal_I2C.h>
#include "Countimer.h"

Countimer tdown;
LiquidCrystal_I2C lcd(0x27, 16, 2);

#define pb_set  A0 //Set
#define pb_up   A1 //Up dan Start
#define pb_down A2 //Down, Pause, dan Reset

int relay = 13;
int buzzer = 9;
int RPWM=11;
int LPWM=10;
int L_EN=8;
int R_EN=9;

int set_motor = 0;
int set_detik = 0;
int set_menit = 0;
int set_jam = 0;
int last_set_motor = 0;
int last_set_detik = 0;
int last_set_menit = 0;
int last_set_jam = 0;
int set = 0;
bool kondisi_set = 0;
bool kondisi_relay = 0;
bool kondisi_reset = 0;

unsigned long lastmillis;

void setup() {
  Serial.begin (9600);

  pinMode(pb_set, INPUT_PULLUP); // pb 1
  pinMode(pb_up, INPUT_PULLUP); // pb 2
  pinMode(pb_down, INPUT_PULLUP); // pb 3

  pinMode(relay, OUTPUT);
  //pinMode(buzzer, OUTPUT);
  pinMode(RPWM,OUTPUT);
  pinMode(LPWM,OUTPUT);
  pinMode(R_EN,OUTPUT);
```

```

pinMode(L_EN,OUTPUT);

digitalWrite(R_EN,HIGH);
digitalWrite(L_EN,HIGH);

lcd.init();
lcd.init();
lcd.backlight();
lcd.clear();
lcd.setCursor(0, 0);
lcd.print(" TUGAS AKHIR ");
lcd.setCursor(0, 1);
lcd.print(" by: MUH. IQBAL ");
tdown.setInterval(print_time, 1000);
delay(2000);
lcd.clear();
}
void print_time() // pengurangan waktu
{
    set_detik = set_detik - 1;
    if (set_detik < 0) {
        set_detik = 59;
        set_menit = set_menit - 1;
    }
    if (set_menit < 0) {
        set_menit = 59;
        set_jam = set_jam - 1;
    }
}
void loop() {
    tdown.run();
    if (digitalRead (pb_set) == 0) {
        if (kondisi_set == 0 && kondisi_relay == 0) {
            kondisi_set = 1;
            set = set + 1;
            if (set > 4) {
                set = 0;
            }
            delay(100);
        }
        else {
            kondisi_set = 0;
        }

        if (digitalRead (pb_up) == 0) {
            if (set == 0) {

```

```

tdown.start();
kondisi_relay = 1;
}
if (set == 1) {
    set_detik++;
    last_set_detik = set_detik;
}
if (set == 2) {
    set_menit++;
    last_set_menit = set_menit;
}
if (set == 3) {
    set_jam++;
    last_set_jam = set_jam;
}
if (set == 4)
{
    set_motor++;
    last_set_motor = set_motor;
}
if (set_detik > 59) {
    set_detik = 0;
}
if (set_menit > 59) {
    set_menit = 0;
}
if (set_jam > 99) {
    set_jam = 0;
}
if (set_motor > 255)
{
    set_motor = 0;
}
delay(200);
}
if (digitalRead (pb_down) == 0) {
    //delay(500);
    lastmillis = millis();
    kondisi_reset = 0;
    while (digitalRead (pb_down) == 0 && set == 0) {
        if (millis() - lastmillis > 500) {
            kondisi_reset = 1;
            kondisi_relay = 0;
            tdown.stop();
            set_detik = last_set_detik;
            set_menit = last_set_menit;

```

```

set_jam = last_set_jam;
//set_motor = last_set_motor;

lcd.setCursor(4, 1);

if (set_jam <= 9) {
  lcd.print("0");
}
lcd.print(set_jam);
lcd.print(":");
if (set_menit <= 9) {
  lcd.print("0");
}
lcd.print(set_menit);
lcd.print(":");
if (set_detik <= 9) {
  lcd.print("0");
}
lcd.print(set_detik);
lcd.print(":");
if (set_motor <= 9)
{
  lcd.print("0");
}
lcd.print(set_motor);
lcd.print(" ");
delay(100);
}
}
if (kondisi_reset == 0) {
  if (set == 0) {
    tdown.stop();
    kondisi_relay = 0;
  }
  if (set == 1) {
    set_detik--;
    last_set_detik = set_detik;
  }
  if (set == 2) {
    set_menit--;
    last_set_menit = set_menit;
  }
  if (set == 3) {
    set_jam--;
    last_set_jam = set_jam;
  }
}

```

```

    if (set == 4)
    {
        set_motor--;
        last_set_motor = set_motor;
    }
    if (set_detik < 0) {
        set_detik = 59;
    }
    if (set_menit < 0) {
        set_menit = 59;
    }
    if (set_jam < 0) {
        set_jam = 99;
    }
    if (set_motor < 0)
    {
        set_motor = 255;
    }
    delay(200);
}
}
lcd.setCursor(0, 0);
if (set == 0) {
    lcd.print("  Timer  ");
}
if (set == 1) {
    lcd.print(" Set Timer SS ");
}
if (set == 2) {
    lcd.print(" Set Timer MM ");
}
if (set == 3) {
    lcd.print(" Set Timer HH ");
}
if (set == 4)
{
    lcd.print(" Set Motor v ");
}
// format tampilan LCD (H 00 : M 00 : S 00)
lcd.setCursor(2, 1);
if (set_jam <= 9) {
    lcd.print("0");
}
lcd.print(set_jam);
lcd.print(":");
if (set_menit <= 9) {

```

```

    lcd.print("0");
  }
  lcd.print(set_menit);
  lcd.print(":");
  if (set_detik <= 9) {
    lcd.print("0");
  }
  lcd.print(set_detik);
  lcd.print(":");
  if (set_motor <= 9)
  {
    lcd.print("0");
  }
  lcd.print(set_motor);
  lcd.print(" ");
  if (set_detik == 0 && set_menit == 0 && set_jam == 0
  && set_motor == last_set_motor && kondisi_relay == 1)
  {
    kondisi_relay = 0;
    tdown.stop();
    digitalWrite(relay, HIGH);
    //digitalWrite(buzzer, HIGH);
    delay(1000);
    //digitalWrite(buzzer, LOW);
    //delay(200);
    //digitalWrite(buzzer, HIGH);
    //delay(300);
    //digitalWrite(buzzer, LOW);
    //delay(200);
    //digitalWrite(buzzer, HIGH);
    // delay(300);
    //digitalWrite(buzzer, LOW);
  }
  if (kondisi_relay == 1) {
    analogWrite(LPWM,last_set_motor);
    analogWrite(RPWM,0);
  }
  else {
    analogWrite(LPWM,0);
    analogWrite(RPWM,0);
  }
  }

  delay(1);
}

```