1. **Gambar Alat**

2. **Listing Progam**

```
#include <LiquidCrystal.h>

#include "HX711.h"

#include <MsTimer2.h>

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

//        0    1    2    3    4    5    6    7    8    9

//
   0123456789012345678901234567890123456789012345678901234567890123456789012345678
   9012345678901234567890123456789

char chr[]  = {" * RIA SETYAWATI  [2015 3010086] * Timbangan Bayi * Tekan pilih
   untuk memulai * RIA SETYAWATI"};

HX711 scale1(A0, 13);

HX711 scale2(10, 9);

#define LED 8

#define trigpin 11

#define echopin 12

#define button1 A2

#define button2 A3
```

```
#define tittle 0
#define select 1
#define measure 2
float duration, distance;
float r[3], d[10], zero, ana[50], analog;
int i, j, btn, mode, cdly, crotate, process;
boolean press1, press2, get_time, tdly, rotate;
void setup()
{
    lcd.begin(16, 2);
    lcd.clear();
     tittle_1st();
      scale1.set_scale(2280.f);
      scale1.tare();
      delay(10);
      scale2.set_scale(2280.f);
      scale2.tare();
      delay(10);
      pinMode(LED, OUTPUT);
      pinMode(trigpin, OUTPUT);
      pinMode(echopin, INPUT);
      MsTimer2::set(500, flash); // 500ms period
      MsTimer2::start();
      blitz();
}
void loop()
{
    // 1. cek tombol 1
     btn = digitalRead(button1);
    if ((btn == 1) & (press1 == true))
```

```
  {
    press1 = false;
    blitz();
    if (process == measure)
      {
        tittle_1st();
          goto out;
      }
  else if (process == tittle)
{
  lcd.setCursor(0, 0);
  //      0123456789012345
  //lcd.print("pilih mode 1    ");
  lcd.print("pilih mode +0cm ");
  process = select;
  mode = 1;
}
    else
{
  if (mode == 4)
  mode = 1;
  else
  mode++;
}
  Lcd.setCursor(11, 0);
  lcd.print("    ");
  lcd.setCursor(11, 0);
  switch (mode)
{
  case  1:
```

```
            lcd.print("+0cm");
            break;
            case  2:
            lcd.print("+5cm");
            break;
            case  3:
            lcd.print("+10cm");
            break;
            case  4:
            lcd.print("+15cm");
            break;
    }
    tdly = true;
    cdly = 0;
    out:
    asm("nop");
    }
    else if (btn == 0)
    {
    press1 = true;
    if (process == measure)
    digitalWrite(LED, HIGH);
    }
// 1. cek tombol 2
if ((process == measure) & (press1 == false))
    {
        btn = digitalRead(button2);
        if ((btn == 1) & (press2 == true))
        {
        press2 = false;
```

```
    blitz();
    zero = r[2];
    digitalWrite(LED, LOW);
    }
  else if (btn == 0)
  {
  press2 = true;
  digitalWrite(LED, HIGH);
  }
}
 // 2. cek waktu tombol
     if (get_time == true)
{
    get_time = false;
    tdly = false;
    blitz();
    if (process == measure)//(mode == 0)
    tittle_1st();
  else
    {
    lcd.setCursor(0, 0);
    //       0123456789012345
    lcd.print("panjang:      ");
    lcd.setCursor(0, 1);
    lcd.print("berat:       ");
    process = measure;
    }
}
 // 3. measuring
 if (process == measure)
```

```cpp
{
    get_distance();
    // scale 1
    scale1.power_up();
    delay(1);
    r[0] = abs(scale1.get_units(10));
    scale1.power_down();
    // distance
    get_distance();
    // scale 2
    scale2.power_up();
    delay(1);
    r[1] = abs(scale2.get_units(10));
    scale2.power_down();
    r[2] = r[0] + r[1];
    r[2] /= 85;
    r[2] = abs(r[2]);
    r[2] = r[2] - zero;
    if (r[2] < 0)
     r[2] = 0;
    lcd.setCursor(7, 1);
    lcd.print("      ");
    lcd.setCursor(7, 1);
    lcd.print(r[2], 1);
    lcd.print(" kg");
    digitalWrite(LED, HIGH);
    delay(30);
    digitalWrite(LED, LOW);
}
void get_distance()
```

```
{
  for (j = 0; j < 10; j++)
  digitalWrite(trigpin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigpin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin, LOW);
  duration = pulseIn(echopin, HIGH);
  distance = (duration * .0343) / 2;
  for (i = 9; i > 0; i--)
  {
      d[i] = d[i - 1];
  }
    d[0] = distance;
}
  distance = 0;
  for (j = 0; j < 10; j++)
{
  distance += d[j];
  }
  distance /= 10;
  if (distance > 40)
  distance = 0;
  else
{
  switch (mode)
{
      case 1:
      distance = 50 - distance;
      break;
```

```arduino
        case 2:
        distance = 56.2 - distance;
        break;
        case 3:
        distance = 61.2 - distance;
        break;
        case 4:
        distance = 66.2 - distance;
        break;
    }
  }
  //if (distance>
  //distance -= 4;
  if (distance < 0)
  distance = 0;
  lcd.setCursor(9, 0);
  lcd.print("       ");
  lcd.setCursor(9, 0);
  lcd.print(distance, 0);
  lcd.print(" cm");
}
void blitz()
{
 digitalWrite(LED, HIGH);
 delay(50);
 digitalWrite(LED, LOW);
}
void flash()
{
 if (tdly == true)
```
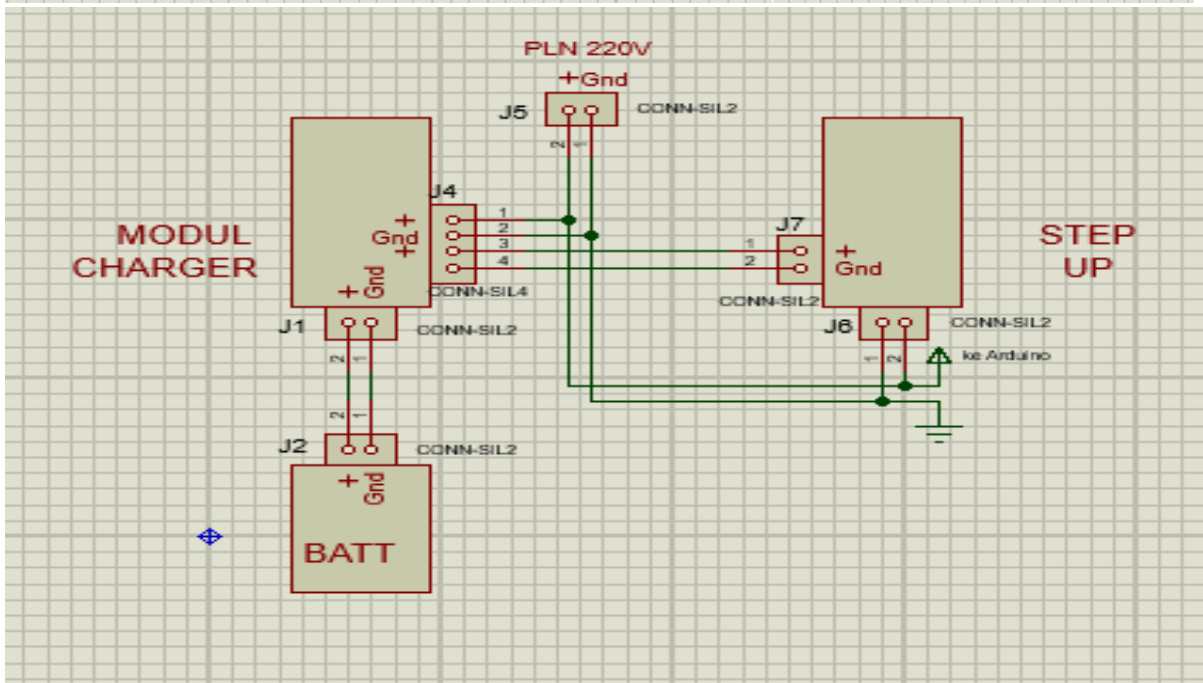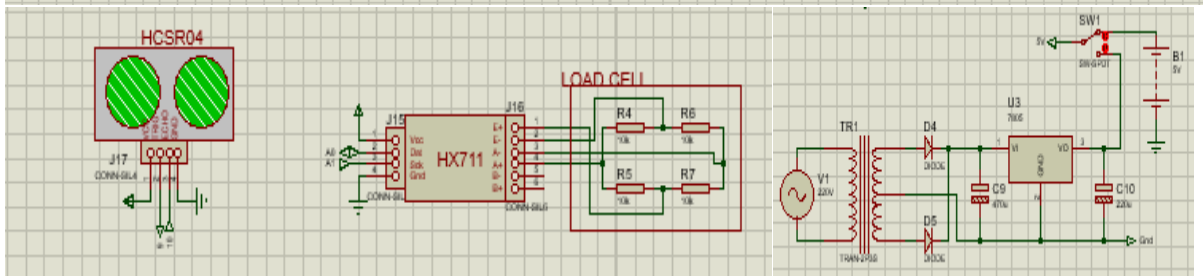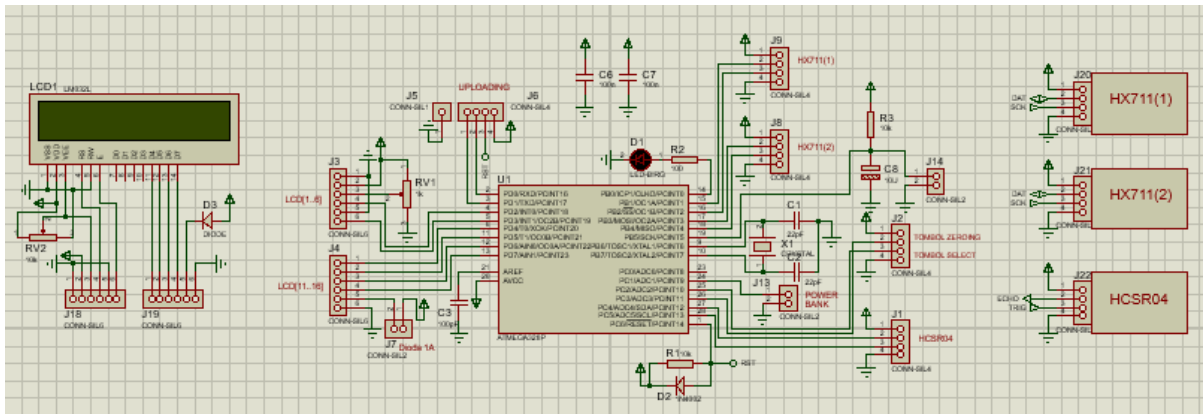
```
  if (cdly == 5)
  get_time = true;
  else
  cdly++;
 }
 else if (process == tittle)
 {
   rotate = true;
 }
}
 void tittle_1st()
{
 lcd.clear();
lcd.setCursor(0, 0);
//      0123456789012345
lcd.print(" * RIA SETYAWATI");
lcd.setCursor(0, 1);
}
```

3. Rangkaian Keseluruhan

4. Data Teganggan dan Berat

No	berat (Kg)	Teganggan (mv)
1	0.5	0.3
2	1	0.5
3	1.5	0.6
4	2	0.8
5	2.5	0.9
6	3	0.9
7	3.5	0.9
8	4	1
9	4.5	1
10	5	1.3
11	5.5	1.5
12	6	1.8
13	6.5	2
14	7	2.1
15	7.5	2.4
16	8	2.4
17	8.5	2.4
18	9	2.5
19	9.5	2.6
20	10	3
21	10.5	3.1

5. Data Nilai Resistansi Ketika Tidak Ada Beban

No	Pin	Resistor	Resistansi (ohm)
1	E^+,A^+	R4	289,6
2	E^-,A^+	R5	289,3
3	E^+,A^-	R6	288,3
4	$E^-.A^-$	R7	399

6. Data Nilai Resistansi Ketika Ada Beban

No	Berat (Kg)	Resistansi (ohm)			
		E^+,A^+	E^-,A^+	A^+,E^-	$A^-.E^-$
1	0.5	289,4	289,2	289,4	4
2	1	289,7	289,5	289,4	4
3	1.5	289,3	289,2	289,0	4
4	2	289,3	289,2	289,0	4
5	6	289,7	289,2	289,0	4