

LAMPIRAN A
LIST PROGRAM ARDUINO IDE

Program Utama

```
#include <LiquidCrystal.h>
#include <Keypad.h>
LiquidCrystal lcd(12, 11, 5, 4, 3, 2);
const byte ROWS = 4; //four rows
const byte COLS = 3; //four columns
char keys[ROWS][COLS] =
{{'1','2','3'},
 {'4','5','6'},
 {'7','8','9'},
 {'*','0','#'}};
char berita[16];
byte rowPins[ROWS] = {
  19,18,17,16}; //connect to the row pinouts of the keypad
byte colPins[COLS] = {
  0, 1, 6}; //connect to the column pinouts of the keypad
Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS
);
byte k=4,n=0;
const int numReadings = 20;
int averageload = 0.0; // the average

float y=0.0;
float xReading = 1.0;
float uminimal = 0.0; // 0.0 mm
float yReading = 1012.0;
float umaximal = 5.0; // 5.0 mm
int diameterPin = A1;
float diameter;
float Reading;
```

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int readings [numReadings];    // the readings from the analog input
int index = 0.0;               // the index of the current reading
int total = 0.0;               // the running total

int analogvalA = 28.0;// 0.2Kg
int berat = A0;
float load, Z;
long time = 0; //

int motor1Pin = 7; // H-bridge leg 1(pin7) (motor1, penggulungnya)
int motor2Pin = 8; // H-bridge leg 2 (pin8)(motor2,kiri kanannya)
int speedPin1 = 9; // H-bridge enable pinA (pin9)(motor1)
int speedPin2 = 10; // H-bridge enable pinB (pin10)(motor2)
int speeds = 0;

int A=0;
int sw=0;
int state=HIGH;
long ot=0 ;

void setup() {
  lcd.begin(16, 2);
  for (int thisReading = 0; thisReading < numReadings; thisReading++)
    readings[thisReading] = 0;

  pinMode(motor1Pin, OUTPUT);
  pinMode(motor2Pin, OUTPUT);
  pinMode(speedPin1, OUTPUT);
  pinMode(speedPin2, OUTPUT);
}

```

```

void LCD(){
    lcd.setCursor(0,0);
    lcd.print("Diameter:");
    lcd.print(diameter,2); // 2 decimal place, println adds a carriage return
    lcd.setCursor(0,1);
    lcd.print("Load=");
    lcd.print(load,3);
    lcd.setCursor(10,1);
    lcd.print(":");
    lcd.setCursor(11,1);
    lcd.print(y);
}

void Mikro () {
    Reading = analogRead(diameterPin);
    diameter = ((umaximal - uminimal)/(yReading - xReading)) * (Reading -
xReading) + uminimal;
}

void Timbangan (){
    total= total - readings[index];
    // read from the sensor:
    readings[index] = analogRead(berat);
    // add the reading to the total:
    total= total + readings[index];
    // advance to the next position in the array:
    index = index + 1;

    // if we're at the end of the array...
    if (index >= numReadings)
        // ...wrap around to the beginning:
        index = 0;
}

```

```

// calculate the average:
averageload = total / numReadings;
// send it to the computer as ASCII digits
if(averageload==18){
    load = 0.00;
}
if(averageload < analogvalA ){
    load = (averageload - 18) / 50;
}
else{
    load = (averageload + 38.706) / 204.354;
}
}

void Motor() {
    digitalWrite(motor1Pin,LOW); // set leg 1 of the H-bridge low
    analogWrite (speedPin1, 255);
    unsigned long d=millis();
    if(sw==0){
        ot=d;
        sw=1;
    }
    if(d-ot>15000){ //15 detik
        state=!state;
        ot=d;
        digitalWrite(motor2Pin,state);
        analogWrite (speedPin2, 255);
    }
}

void Henti(){

```

```

// berhenti
digitalWrite(speedPin1,LOW);
digitalWrite(speedPin2,LOW);
A=0;
Z=0;
y=0;
}

void readKeypad(){
char key = keypad.getKey();

if (key != NO_KEY){
    berita[n]=key;
    n++;
    if(n>4){
        for(n=1;n<=4;n++)berita[n-1]=berita[n];
        berita[n]=' ';
    }
}

if(key=='*'){ // input diameter mikrometer sekrup
    A=A+1;
}

if(key=='#'){ //input berat yg diinginkan
    Z=load-y;
}
}

void loop() {
readKeypad();

```

```
    if(A==0){  
        Mikro();  
    }  
    Timbangan();  
    LCD();  
    if(diameter >0 && load >0 && y>0){  
        Motor();  
    }  
    if(load <= Z){  
        Henti();  
    }  
}
```