A. Kode Program

```
#include <Servo.h> //library servo
#include "SG_PID.h" // library pid
#include <EasyUltrasonic.h> // library sensor ultrasonic
#include <LiquidCrystal_I2C.h> // library lcd
LiquidCrystal_I2C lcd(0x27, 16, 2);
#define TRIGPIN 6
#define ECHOPIN 7
#define buz 12
int distanceCM;
EasyUltrasonic ultrasonic;
pid balancing;
Servo myservo;
int pos, x;
float calc ;

void setup() {
  lcd.init();
  lcd.backlight();
  balancing.param(1.01, 0.034, 0.0005, INTEGRAL);
  balancing.constraint(-10, 10);
  balancing.setPoint(90);
  balancing.timeSampling(100);
  myservo.attach(3);
  myservo.write(0);
  ultrasonic.attach(TRIGPIN, ECHOPIN);
  lcd.setCursor(0, 0);
  lcd.print("    Menunggu    ");
  lcd.setCursor(0, 1);
  lcd.print("   Kedatangan   ");
```

```
  pinMode(buz, OUTPUT);
}

void loop() {
  distanceCM = ultrasonic.getDistanceCM();
  if (distanceCM <= 10)
  {
    pos = myservo.read();
    x = (-0.896732026) + (0.957358101 * pos);
    balancing.readSensor(x);
    balancing.calc();
    calc = balancing.showPID();
    myservo.write(calc);
    if (x >= 90)
    {
      lcd.setCursor(0, 0);
      lcd.print("   Kereta Api   ");
      lcd.setCursor(0, 1);
      lcd.print("   Sudah Tiba   ");
      digitalWrite(buz, HIGH);
      delay (1000);
      digitalWrite(buz, LOW);
      delay (5000);
      lcd.setCursor(0, 0);
      lcd.print("   Kereta Api   ");
      lcd.setCursor(0, 1);
      lcd.print("Segera Berangkat");
      digitalWrite(buz, HIGH);
      delay (1000);
      digitalWrite(buz, LOW);
```

```
      delay(1000);
      digitalWrite(buz, HIGH);
      delay (1000);
      digitalWrite(buz, LOW);
      delay(3000);
      myservo.write(0);
      lcd.setCursor(0, 0);
      lcd.print("    Menunggu    ");
      lcd.setCursor(0, 1);
      lcd.print("   Kedatangan   ");
      delay(5000);
    }
  }
  else
  {
    myservo.write(0);
  }
}
```