# LAMPIRAN A KODE PROGRAM KESELURUHAN SISTEM

## A.1 Kode Program Modul Sensor Suhu

| No | Kode Program |
|---|---|
| 1 | `#include "TinyWireS.h"` |
| 2 | |
| 3 | `#define SLAVE_ADDR 30` |
| 4 | |
| 5 | `boolean firstbyte = true;` |
| 6 | `char kodeSensor = 'D';` |
| 7 | `char cmd;` |
| 8 | `char cmdSensor = 'x';` |
| 9 | `char cmdData = 'z';` |
| 10 | |
| 11 | `int temp;` |
| 12 | `int tempPin = 3;` |
| 13 | `int millivolts;` |
| 14 | `int celsius;` |
| 15 | |
| 16 | `void setup()` |
| 17 | `{` |
| 18 | `  TinyWireS.begin(SLAVE_ADDR);` |
| 19 | `  TinyWireS.onReceive(receiveEvent);` |
| 20 | `  TinyWireS.onRequest(requestEvent);` |
| 21 | `}` |
| 22 | |
| 23 | `void loop() {` |
| 24 | |
| 25 | `  temp = analogRead(tempPin);` |
| 26 | `  millivolts = (temp / 1024.0) * 5000;` |
| 27 | `  celsius = millivolts / 10;` |
| 28 | `  delay(100);` |
| 29 | `}` |
| 30 | `void receiveEvent(uint8_t) {` |
| 31 | `  cmd = TinyWireS.receive();` |
| 32 | `}` |

| No | Kode Program |
|---|---|
| 33 | `void requestEvent() {` |
| 34 | |
| 35 | `  byte plow;` |
| 36 | `  byte phi;` |
| 37 | |
| 38 | `  if (cmd == cmdData) {` |
| 39 | `    if (firstbyte == true)` |
| 40 | `    {` |
| 41 | `      plow = lowByte(celsius);` |
| 42 | `      firstbyte = false;` |
| 43 | `      TinyWireS.send(plow);` |
| 44 | `    }` |
| 45 | `    else` |
| 46 | `    {` |
| 47 | `      phi = highByte(celsius);` |
| 48 | `      TinyWireS.send(phi);` |
| 49 | `      firstbyte = true;` |
| 50 | `    }` |
| 51 | `  }` |
| 52 | `  else {` |
| 53 | `    TinyWireS.send(kodeSensor);` |
| 54 | `  }` |
| 55 | `}` |

## A.2 Kode Program Modul Sensor Jarak

| No | Kode Program |
|---|---|
| 1 | `#include "TinyWireS.h"` |
| 2 | |
| 3 | `#define SLAVE_ADDR 30` |
| 4 | |
| 5 | `boolean firstbyte = true;` |
| 6 | `char kodeSensor = 'D';` |
| 7 | `char cmd;` |
| 8 | `char cmdSensor = 'x';` |
| 9 | `char cmdData = 'z';` |
| 10 | |
| 11 | `const int trigPin = 3;` |
| 12 | `const int echoPin = 4;` |
| 13 | `int cm= 200;` |
| 14 | `void setup()` |
| 15 | `{` |
| 16 | `  TinyWireS.begin(SLAVE_ADDR);` |
| 17 | `  TinyWireS.onReceive(receiveEvent);` |
| 18 | `  TinyWireS.onRequest(requestEvent);` |
| 19 | `}` |
| 20 | `void loop() {` |
| 21 | |
| 22 | `  long duration;` |
| 23 | |
| 24 | `  pinMode(trigPin, OUTPUT);` |
| 25 | `  digitalWrite(trigPin, LOW);` |
| 26 | |
| 27 | `  delayMicroseconds(2);` |
| 28 | `  digitalWrite(trigPin, HIGH);` |
| 29 | `  delayMicroseconds(10);` |
| 30 | `  digitalWrite(trigPin, LOW);` |
| 31 | |
| 32 | `  pinMode(echoPin, INPUT);` |
| 33 | `  duration = pulseIn(echoPin, HIGH);` |

| No | Kode Program |
|---|---|
| 34 | `  delay(1000);` |
| 35 | `}` |
| 36 | |
| 37 | `void receiveEvent(uint8_t) {` |
| 38 | `  cmd = TinyWireS.receive();` |
| 39 | `}` |
| 40 | |
| 41 | `void requestEvent() {` |
| 42 | `  byte plow;` |
| 43 | `  byte phi;` |
| 44 | `  if (cmd == cmdData) {` |
| 45 | `    if (firstbyte == true)` |
| 46 | `    {` |
| 47 | `      plow = lowByte(cm);` |
| 48 | `      firstbyte = false;` |
| 49 | `      TinyWireS.send(plow);` |
| 50 | `    }` |
| 51 | `    else` |
| 52 | `    {` |
| 53 | `      phi = highByte(cm);` |
| 54 | `      TinyWireS.send(phi);` |
| 55 | `      firstbyte = true;` |
| 56 | `    }` |
| 57 | `  }` |
| 58 | `  else {` |
| 59 | `    TinyWireS.send(kodeSensor);` |
| 60 | `  }` |
| 61 | `}` |
| 62 | |
| 63 | `long microsecondsToCentimeters(long microseconds) {` |
| 64 | `  return microseconds / 29 / 2;` |
| 65 | `}` |

## A.3 Kode Program Modul Sensor Gas

| No | Kode Program |
|---|---|
| 1 | `#include "TinyWireS.h"` |
| 2 | |
| 3 | `#define SLAVE_ADDR 10` |
| 4 | |
| 5 | `boolean firstbyte = true;` |
| 6 | `char kodeSensor = 'B';` |
| 7 | `char cmd;` |
| 8 | `char cmdSensor = 'x';` |
| 9 | `char cmdData = 'z';` |
| 10 | `int sensorPin = 3;` |
| 11 | `int sensorValue;` |
| 12 | `void setup()` |
| 13 | `{` |
| 14 | `  TinyWireS.begin(SLAVE_ADDR);` |
| 15 | `  TinyWireS.onReceive(receiveEvent);` |
| 16 | `  TinyWireS.onRequest(requestEvent);` |
| 17 | `}` |
| 18 | |
| 19 | `void loop() {` |
| 20 | `  sensorValue = analogRead(sensorPin);` |
| 21 | `  delay(100);` |
| 22 | `}` |
| 23 | |
| 24 | `void receiveEvent(uint8_t) {` |
| 25 | `  cmd = TinyWireS.receive();` |
| 26 | `}` |
| 27 | |
| 28 | `void requestEvent() {` |
| 29 | `  byte plow;` |
| 30 | `  byte phi;` |
| 31 | `if (cmd == cmdData) {` |
| 32 | `  if (firstbyte == true)` |
| 33 | `  {` |
| 34 | `    plow = lowByte(sensorValue);` |
| 35 | `    firstbyte = false;` |
| 36 | |

| No | Kode Program |
|---|---|
| 37 | TinyWireS.send(plow); |
| 38 | } |
| 39 | else |
| 40 | { |
| 41 | phi = highByte(sensorValue); |
| 42 | TinyWireS.send(phi); |
| 43 | firstbyte = true; |
| 44 | } |
| 45 | } |
| 46 | else { |
| 47 | TinyWireS.send(kodeSensor); |
| 48 | } |
| 49 | } |

## A.4 Kode Program Modul Sensor Cahaya

| No | Kode Program |
|---|---|
| 1 | #include "TinyWireS.h" |
| 2 | #define SLAVE_ADDR 5 |
| 3 | |
| 4 | boolean firstbyte = true; |
| 5 | char kodeSensor = 'A'; |
| 6 | char cmd; |
| 7 | char cmdSensor = 'x'; |
| 8 | char cmdData = 'z'; |
| 9 | const int sensorPin = 3; |
| 10 | int sensorValue; |
| 11 | void setup() |
| 12 | { |
| 13 | pinMode(sensorPin, INPUT); |
| 14 | TinyWireS.begin(SLAVE_ADDR); |
| 15 | TinyWireS.onReceive(receiveEvent); |
| 16 | TinyWireS.onRequest(requestEvent); |
| 17 | } |

| No | Kode Program |
|---|---|
| 18 | `void loop() {` |
| 19 | `  sensorValue = analogRead(sensorPin);` |
| 20 | `  delay(100);` |
| 21 | `}` |
| 22 | |
| 23 | `void receiveEvent(uint8_t) {` |
| 24 | `  cmd = TinyWireS.receive();` |
| 25 | `}` |
| 26 | `void requestEvent() {` |
| 27 | `  byte plow;` |
| 28 | `  byte phi;` |
| 29 | `  if (cmd == cmdData) {` |
| 30 | `    if (firstbyte == true)    {` |
| 31 | `      plow = lowByte(sensorValue);` |
| 32 | `      firstbyte = false;` |
| 33 | `      TinyWireS.send(plow);` |
| 34 | `    }` |
| 35 | `    else` |
| 36 | `    {` |
| 37 | `      phi = highByte(sensorValue);` |
| 38 | `      TinyWireS.send(phi);` |
| 39 | `      firstbyte = true;` |
| 40 | `    }` |
| 41 | `  }` |
| 42 | `  else {` |
| 43 | `    TinyWireS.send(kodeSensor);` |
| 44 | `  }` |
| 45 | `}` |