UNIVERSITAS PGRI ADI BUANA SURABAYA
FAKULTAS TEKNIK

Program Studi : Teknik Lingkungan – Perencanaan Wilayah Kota
Teknik Industri – Teknik Elektro - PVKK
KAMPUS II: Jl. Dukuh Menanggal XII/4 ☎ (031) 8281181 Surabaya 60234
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BERITA ACARA BIMBINGAN SKRIPSI

Form Skripsi-03

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Program Studi	: Teknik Elektro
Pembimbing	: Akbar Sujiwa, S.si., M.si.
Periode Bimbingan	: Gasal/Genap*) Tahun 2022 / 2023.
Judul Skripsi	PROTOTIPE ROBOT MANIPULATOR BERBASIS SENSOR FLEX & SENSOR MPU 6050 DENGAN KENDALI WIRELESS

KEGIATAN KONSULTASI / BIMBINGAN

No	Tanggal	Materi pembimbingan	Keterangan	Paraf
1	3 - Apr - 2023	Bab IV penyajian & Analisa data	ACC	
2	27 - Apr - 2023	Bab IV evaluasi produk	ACC	
3	10 - may - 2023	Bab IV penyajian data	ACC	
4	24 - may - 2023	Bab IV Analisa data	ACC	
5	30 - may - 2023	Bab IV pembahasan	ACC	
6	31 - may - 2023	Bab IV pembahasan	ACC	
7	7 - Jun - 2023	Bab V kesimpulan	Revisi	
8	8 - Jun - 2023	Bab V kesimpulan	ACC	
9	9 - Jun - 2023	Bab V saran	Revisi	
10	12 - Jun - 2023	Bab V saran	ACC	

Dinyatakan selesai tanggal : ..... 20....

Surabaya, ...

Mengetahui, Ketua Program Studi,	Pembimbing,	Mahasiswa,
.....	.....	.....
Akbar Sujiwa, S.si., M.si.	Akbar Sujiwa, S.si., M.si	Muhammad Fadlan

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FORM REVISI SKRIPSI

Nama Mahasiswa : MUHAMMAD FADLAN
NIM : 1936000020
Fakultas / Progdi : TEKNIK ELEKTRO
Judul Skripsi : PROTOTIPE ROBOT MANIPULATOR BERBASIS SENSOR FLEX DAN MPU 6050 KENDALI WIRELESS.

Ujian Tanggal :

No Bab.	Tanggal	Materi Konsultasi	Keterangan Catatan	Tanda Tangan Penguji
I	27 - Juni - 23	Kesimpulan & Saran.	Acc	
II	3 - Juli - 23	Gambar Grafik	Acc	
III	3 - Juli - 23	Daftar pustaka	Acc	
IV	3 - Juli - 23	Wireless	Acc	
V				

Disetujui Dosen Penguji
Pada Tanggal, 3 - Juli - 23

Penguji I,

(Saqila Rochman, S.T., M.Si)

Penguji II

(Adi Winarno, S.Kom., M.Kom.)

1. a. Penyelesaian Revisi paling lambat 2 minggu dari pelaksanaan Ujian Skripsi.
   b. Pengetikan, penjilidan, penandatangani Skripsi dan mengumpulkan Skrispi paling lambat 2 minggu dari revisi.
2. Apabila sampai batas waktu tersebut (point 1,a dan b) mahasiswa belum menyelesaikan revisi dan tanda tangan, maka **Ujian dinyatakan Gugur**.
3. a. Foto copy Form Revisi diserahkan ke Program Studi.
   b. Skripsi yang sudah direvisi diserahkan ke Fakultas tiga eksemplar untuk dijilid.

CODING PROGRAM PENGIRIM

```
#include <SPI.h>
#include <RF24.h>
#include <basicMPU6050.h>
#include<Wire.h>
basicMPU6050<> imu;
RF24 radio(9, 10);  // NRF24L01 pins: CE, CSN
const uint64_t pipe = 0xE8E8F0F0E1LL;  // Communication pipe address
struct SensorData {
  int sensor1;
  int sensor2;
  int sensor3;
  // Add more sensor variables here if needed
};
SensorData sensorData;
float imux;
float imuz;
int capit;
void setup() {
    // Set registers - Always required
  imu.setup();
  // Initial calibration of gyro
  imu.setBias();
  // Start console
  //Serial.begin(9600);
  radio.begin();
  radio.openWritingPipe(pipe);
  Serial.begin(9600);
}
void loop() {
  baca_imu();
  // Read sensor data and populate the SensorData struct


  sensorData.sensor1 = imux;
  sensorData.sensor2 = imuz;
  sensorData.sensor3 = capit;
  //Serial.println(sensorData.sensor1);
  // Send the sensor data over the NRF24L01 module
  radio.write(&sensorData, sizeof(sensorData));

  delay(50);  // Adjust the delay as needed
}
void baca_imu()
{
    // Update gyro calibration
  imu.updateBias();

  //-- Scaled and calibrated output:
  // Accel
  imux=imu.ay()*90;
  imuz=imu.az()*90;
  capit=analogRead(A0);
```

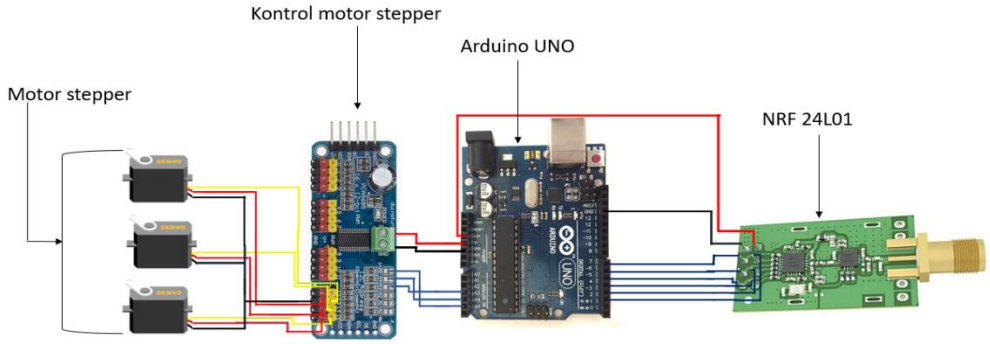
```
  if(imux>45)imux=45;
  else if(imux<-45)imux=-45;
  if(imuz>90)imuz=90;
  else if(imuz<0)imuz=0;
  if(capit>300)capit=75;
  else{capit=15;
  }
  Serial.print("imux : ");
  Serial.print(imux);
  Serial.print(" imuz : ");
  Serial.print(imuz);
  Serial.print(" capit : ");
  Serial.println(capit);
}
```

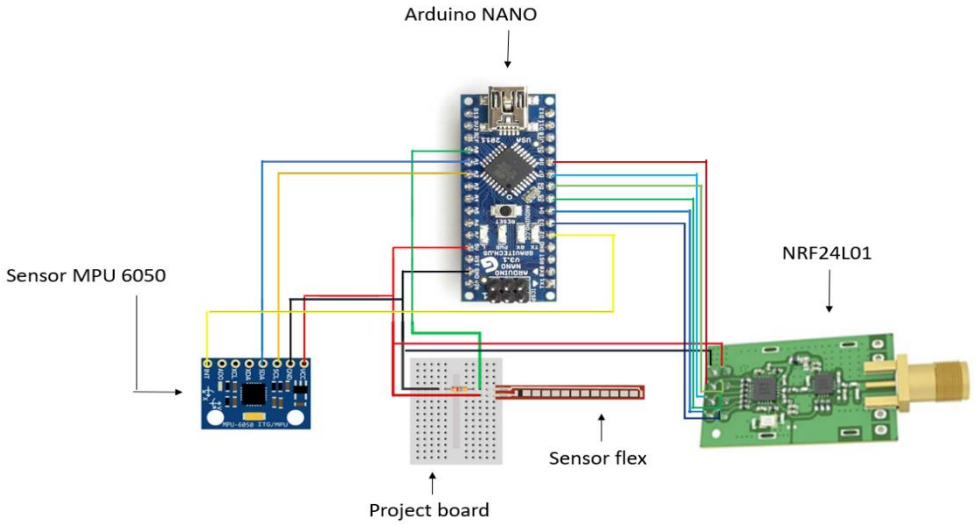
CODING PROGRAM PENERIMA

```
#include <Servo.h>
#include <SPI.h>
#include <RF24.h>
#include <SoftwareSerial.h>
SoftwareSerial mySerial(6, 7); // RX, TX
Servo base;  // create servo object to control a servo
Servo arma;  // create servo object to control a servo
Servo armb;  // create servo object to control a servo
Servo capit;  // create servo object to control a servo
int pos = 0;    // variable to store the servo position
RF24 radio(8, 10);  // NRF24L01 pins: CE, CSN
const uint64_t pipe = 0xE8E8F0F0E1LL;  // Communication pipe address
struct SensorData {
  int sensor1;
  int sensor2;
  int sensor3;
  // Add more sensor variables here if needed
};
SensorData sensorData;
int imux,imuz,capitx;
void setup() {
  base.attach(9);  // attaches the servo on pin 9 to the servo object
  arma.attach(5);  // attaches the servo on pin 9 to the servo object
  armb.attach(6);  // attaches the servo on pin 9 to the servo object
  capit.attach(3);  // attaches the servo on pin 9 to the servo object
   base.write(20);              // tell servo to go to position in
variable 'pos'
   arma.write(90);              // tell servo to go to position in
variable 'pos'
   armb.write(90);              // tell servo to go to position in
variable 'pos'
   capit.write(15);              // tell servo to go to position in
variable 'pos'

  Serial.begin(9600);
  radio.begin();
  radio.openReadingPipe(1, pipe);
  radio.startListening();

}
//capit 15-75
//lifter bawah 180-90 90 tegak
//lifter atas 0-90    90 tegak
//base 20-110
void loop() {
//    base.write(20);              // tell servo to go to position in
variable 'pos'
//    arma.write(90);              // tell servo to go to position in
variable 'pos'
//    armb.write(90);              // tell servo to go to position in
variable 'pos'
```

```
//    capit.write(15);              // tell servo to go to position in
variable 'pos'
    read_radio();
}
void read_radio()
{
    if (radio.available()) {
    radio.read(&sensorData, sizeof(sensorData));

    // Process received sensor data
    int sensor1Value = sensorData.sensor1;
    int sensor2Value = sensorData.sensor2;
    int sensor3Value = sensorData.sensor3;
    imux=sensor1Value;
    imuz=sensor2Value;
    capitx=sensor3Value;


    // Print received sensor data
    Serial.print("Sensor 1: ");
    Serial.print(sensor1Value);
    Serial.print("   Sensor 2: ");
    Serial.print(sensor2Value);
    Serial.print("   Sensor 3: ");
    Serial.println(sensor3Value);
    lift(imuz);
    rot(imux);
    grab(capitx);
  }
}
void lift(int x)
{
    arma.write(180-x);              // tell servo to go to position in
variable 'pos'
    armb.write(120+x/3);              // tell servo to go to position in
variable 'pos'
}
void rot(int x)
{
    base.write(55+x);              // tell servo to go to position in
variable 'pos'
}
  void grab(int x)
{
    capit.write(x);              // tell servo to go to position in
variable 'pos'
}
```

WIRING DIAGRAM PROTOTIPE ROBOT MANIPULATOR





GAMBAR PROTOTIPR ROBOR MANIPULATOR