Task 8 **JOYSTICK**

22.04.2022

Problem definition:

Analog joystick is sometimes called as Control Stick is used to control the pointer movement in 2-dimension axis. The joystick has two potentiometer to read user's input with the help of motor using Intel Galileo board.

Tools used:

Software - Arduino

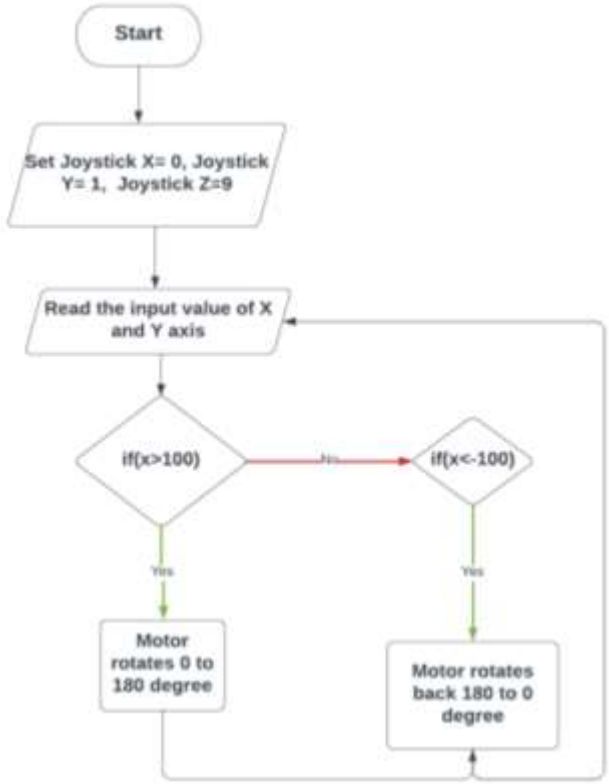
Hardware – LED and joystick and motor

Board - Intel Galileo

Sensor description:

The joystick has two potentiometer to read user's input. One potentiometer is used to get the analog output voltage for X-Direction movement and the other potentiometer is used to get the analog output voltage for Y-Direction movement. The potentiometer are connected between +VCC and Ground.

Flowchart:



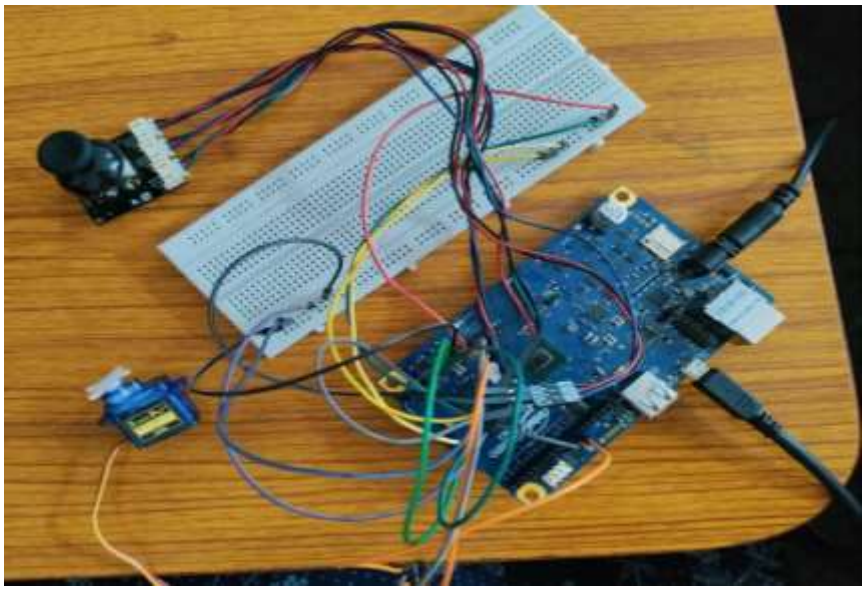
Source code:

```
// # Connection:
// #        X-Axis  -> Analog pin 0
// #        Y-Axis  -> Analog pin 1
// #        Z-Axis  -> Digital pin 3
// #


#include <Servo.h>


Servo myservo;  // create servo object to control a servo


int pos = 0;    // variable to store the servo position
int JoyStick_X = 0; //x
int JoyStick_Y = 1; //y
int JoyStick_Z = 9; //key
```

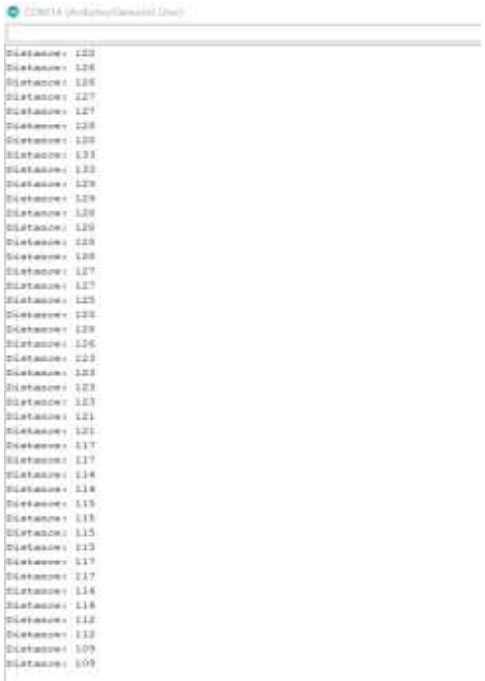
```
void setup()
{
  myservo.attach(10);

  pinMode(JoyStick_Z, INPUT);
  Serial.begin(9600); // 9600 bps
}
void loop()
{
  myservo.write(0);
  int x,y;
  x=analogRead(JoyStick_X);x-=360;
  y=analogRead(JoyStick_Y);y-=360;
  Serial.print(x);
  Serial.print(" , ");
  Serial.println(y);
  if(x> 100)
  {
    for (pos = 0; pos <= 120; pos += 1) { // goes from 0 degrees to 180 degrees
    // in steps of 1 degree
    myservo.write(pos);              // tell servo to go to position in variable 'pos'
    delay(15);                       // waits 15 ms for the servo to reach the position
  }
  }
  else if (x< -100)
  {
    for (pos = 120; pos >= 0; pos -= 1) { // goes from 180 degrees to 0 degrees
    myservo.write(pos);              // tell servo to go to position in variable 'pos'
    delay(15);                       // waits 15 ms for the servo to reach the position
  }
  }
  delay(100);
}
```

Sample input and output:

Connection circuit of Joystick with motor



Serial monitor output of Joystick



Serial plotter output of Joystick

Real time application:

1. An analog stick is often used to move some game object, usually the playable character.
2. It may also be used to rotate the camera, usually around the character.
3. The analog stick can serve a great variety of other functions, depending on the game.

Conclusion:

Thus, by using the joystick sensor the motor rotates from 0 to 180 degree based on the joystick movement using Intel Galileo board.