//

// Lab9\_Task4

//

//

//Name: Keaton Raymond

//Date:10/24/2019

//Class: ECE 1001-005

//

//

//Problem Statement:

//perform a series of turns using one wheel pivot turns

//

//

// ^^^^ Algorithm ^^^^

//

// define variables

//

// setup function

// initialize all variables for robot to output

// initialize button to input

//

// loop function

// wait for button to be pressed

// move both wheels forward 10 inches

// spin the left wheel forward to turn right

// forward then right again

// forward

// spin right wheel forward to turn left

// forward

//

//name robot control pins as variables--wire the Arduino according to the following

const int AIN1 = 11;

const int AIN2 = 12;

const int PWMA = 10;

const int BIN1 = 8;

const int BIN2 = 7;

const int PWMB = 9;

const int STBY = 6;

//connect a button between ground and pin 5

const int StartButton = 5;

void setup()

{

//assign control pins

pinMode(AIN1, OUTPUT);

pinMode(AIN2, OUTPUT);

pinMode(PWMA, OUTPUT);

pinMode(BIN1, OUTPUT);

pinMode(BIN2, OUTPUT);

pinMode(PWMB, OUTPUT);

pinMode(STBY, OUTPUT);

pinMode(StartButton, INPUT\_PULLUP);

}

void loop()

{

//waiting for button to be pressed

while (digitalRead(StartButton) == HIGH)

{

digitalWrite(STBY, LOW); //turn the motor controller standby pin to off

delay (10); //delay for a few milliseconds before checking the button status again

}

digitalWrite(STBY, HIGH); //enable the motor controller

delay(200);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn right

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, LOW);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(1000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn right

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, LOW);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(1000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn left

digitalWrite(AIN1, LOW);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(1000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 130);

analogWrite(PWMB, 150);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

}

//

// Lab9\_Task5

//

//

//Name: Keaton Raymond

//Date:10/24/2019

//Class: ECE 1001-005

//

//

//Problem Statement:

//perform a series of turns using 2 wheel turns

//

//

// ^^^^ Algorithm ^^^^

//

// define variables

//

// setup function

// initialize all variables for robot to output

// initialize button to input

//

// loop function

// wait for button to be pressed

// move both wheels forward 10 inches

// spin the left wheel forward and the right wheel backwards to turn right

// forward then right again

// forward

// spin right wheel forward and the left wheel backwards to turn left

// forward

//

//name robot control pins as variables--wire the Arduino according to the following

const int AIN1 = 11;

const int AIN2 = 12;

const int PWMA = 10;

const int BIN1 = 8;

const int BIN2 = 7;

const int PWMB = 9;

const int STBY = 6;

//connect a button between ground and pin 5

const int StartButton = 5;

void setup()

{

//assign control pins

pinMode(AIN1, OUTPUT);

pinMode(AIN2, OUTPUT);

pinMode(PWMA, OUTPUT);

pinMode(BIN1, OUTPUT);

pinMode(BIN2, OUTPUT);

pinMode(PWMB, OUTPUT);

pinMode(STBY, OUTPUT);

pinMode(StartButton, INPUT\_PULLUP);

}

void loop()

{

//waiting for button to be pressed

while (digitalRead(StartButton) == HIGH)

{

digitalWrite(STBY, LOW); //turn the motor controller standby pin to off

delay (10); //delay for a few milliseconds before checking the button status again

}

digitalWrite(STBY, HIGH); //enable the motor controller

delay(200); // pause -- get ready!

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 140);

analogWrite(PWMB, 130);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn right

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, LOW);

digitalWrite(BIN2, HIGH);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(750);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn right

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, LOW);

digitalWrite(BIN2, HIGH);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(1000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Turn left

digitalWrite(AIN1, LOW);

digitalWrite(AIN2, HIGH);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(1000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

//Forward

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 150);

analogWrite(PWMB, 130);

delay(2000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

}

//

// Lab9\_Task6

//

//

//Name: Keaton Raymond

//Date:10/24/2019

//Class: ECE 1001-005

//

//

//Problem Statement:

//move the bot from 1 corner to the opposite corner in a smooth arc

//

//

// ^^^^ Algorithm ^^^^

//

// define variables

//

// setup function

// initialize all variables for robot to output

// initialize button to input

//

// loop function

// wait for button to be pressed

// move both wheels forward, giving more power to one wheel to give it an arc

// test for proper amount of time it takes, then stop the robot

//

//name robot control pins as variables--wire the Arduino according to the following

const int AIN1 = 11;

const int AIN2 = 12;

const int PWMA = 10;

const int BIN1 = 8;

const int BIN2 = 7;

const int PWMB = 9;

const int STBY = 6;

//connect a button between ground and pin 5

const int StartButton = 5;

void setup()

{

//assign control pins

pinMode(AIN1, OUTPUT);

pinMode(AIN2, OUTPUT);

pinMode(PWMA, OUTPUT);

pinMode(BIN1, OUTPUT);

pinMode(BIN2, OUTPUT);

pinMode(PWMB, OUTPUT);

pinMode(STBY, OUTPUT);

pinMode(StartButton, INPUT\_PULLUP);

}

void loop()

{

//waiting for button to be pressed

while (digitalRead(StartButton) == HIGH)

{

digitalWrite(STBY, LOW);

delay (10);

}

digitalWrite(STBY, HIGH);

delay(200);

//Forward at an arc

digitalWrite(AIN1, HIGH);

digitalWrite(AIN2, LOW);

digitalWrite(BIN1, HIGH);

digitalWrite(BIN2, LOW);

analogWrite(PWMA, 85);

analogWrite(PWMB, 150);

delay(5000);

//stop

analogWrite(PWMA, 0);

analogWrite(PWMB, 0);

delay(250);

}