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The Pennsylvania Governor’s STEM State Competition

BUILDING A STRONGER PENNSYLVANIA

Bishop Shanahan High School

Arduino Project File: Brilliantly\_Bright

“Brilliantly Bright Solar LED Street Signs”

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// Stepper library import

#include <Stepper.h>

// variables declared

const int stepsPerRevolution = 200; // number of steps per full rotation

const int stepsPerSign = 100; // number of steps per half rotation

int stepCount = 0; // number of steps the motor has taken

int ledpin = 2; // LED blue light - bluetooth on

int ledlightsleft = 3; // LED lights left side of sign

int ledlightsright = 4; // LED lights right side of sign

int state = 0; // bluetooth input data

int flag = 0; // serial print

// initializes stepper motor instance on pins 8 through 11:

Stepper myStepper(stepsPerRevolution, 8,9,10,11);

void setup() {

// put your setup code here, to run once:

pinMode(ledpin,OUTPUT); // sets pin 2 output

pinMode(ledlightsleft,OUTPUT); // sets pin 3 output

pinMode(ledlightsright,OUTPUT); // sets pin 4 output

Serial.begin(9600); // starts Bluetooth receive & motor functions

}

void loop() {

// put your main code here, to run repeatedly:

if(Serial.available() > 0) // if the Bluetooth data is being received

{

state = Serial.read(); // set its value into state

flag = 0; // declared so our Serial doesn't loop

}

if (state == '0') // if the value received is a '0'

{

myStepper.step(1); // if 1 is being received, stepper motor takes 1 step

stepCount++; // add one!

delay(500); // about half a second

digitalWrite(ledlightsleft,LOW); // turns lights off

digitalWrite(ledlightsright,LOW);

if(flag == 0)

{

Serial.println("Clockwise"); // prints a message

flag = 1; // no infinite serials thank you very much

}

}

else if (state == '1') // if the value received is a '1'

{

myStepper.step(-1); // if 1 is being received, stepper motor takes 1 step

stepCount++; // add one!

delay(500); // about half a second

digitalWrite(ledlightsleft,HIGH); // turns lights on

digitalWrite(ledlightsright,HIGH);

if(flag == 0)

{

Serial.println("Counterclockwise");

flag = 1;

}

}

}