Define parameters

```
#define echoPin 11
#define trigPin 12

const int button1 = 2;
const int button2 = 3;

int bv1 = 0;
int bv2 = 0;
int pos = 0;
int angle;

double Setpoint = 8.14;
double Input;
double Output = 0;
double Kp=0.01, Ki=30, Kd=0.03;

long duration;

Servo myservo;
PID myPID(&Input, &Output, &Setpoint, Kp, Ki, Kd, DIRECT);
```

↓

Initialize

```
Serial.begin(9600);
pinMode(button1, INPUT_PULLUP);
pinMode(button2, INPUT_PULLUP);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
digitalWrite(trigPin, LOW);
myservo.attach(9);
myservo.write(42);
myPID.SetMode(AUTOMATIC);
myPID.SetTunings(Kp, Ki, Kd);
```

↓

Read inputs from pushbuttons

```
bv1 = digitalRead(button1);
bv2 = digitalRead(button2);
```

Bv1 = LOW →

Decrease Setpoint by 0.1 cm

```
Setpoint = Setpoint - 0.1;
delay(20);
```

↓ else

Bv2 = LOW →

Increase Setpoint by 0.1 cm

```
Setpoint = Setpoint + 0.1;
delay(20);
```

PID control

```
myPID.Compute();
angle = round(Output);
myservo.write(angle);
```

↓

Result display

```
Serial.print(Input);
Serial.print(",");
Serial.println(Setpoint);
```

↑ (back to Read inputs from pushbuttons)

`