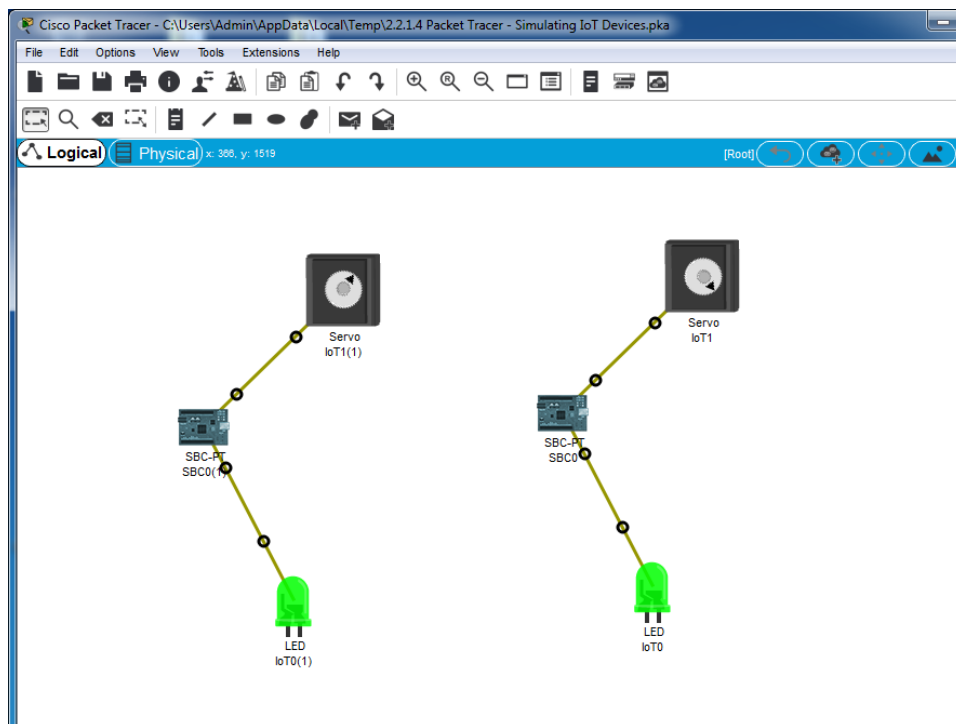
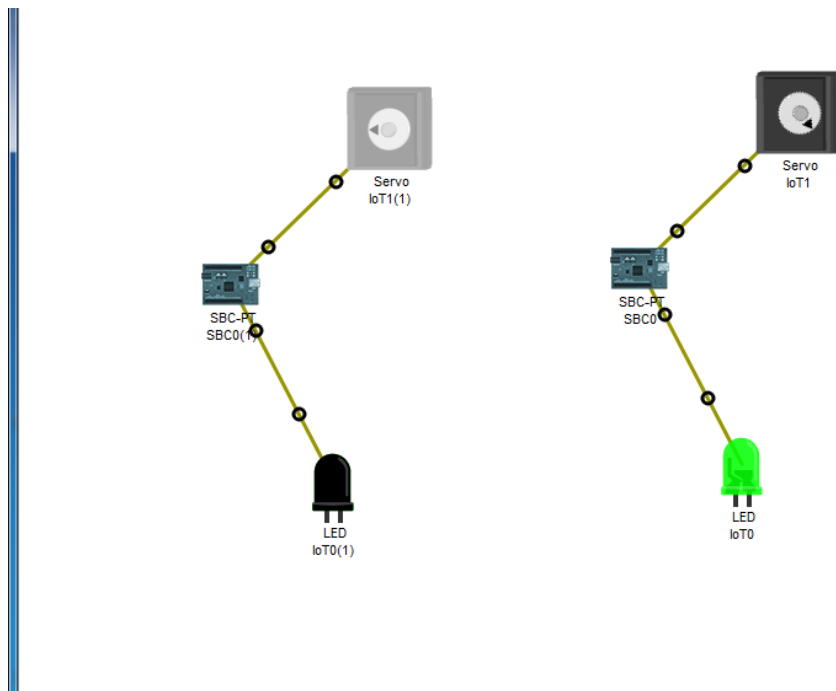


<p style="text-align: center;">Politechnika Świętokrzyska w Kielcach Wydział Elektrotechniki, Automatyki i Informatyki</p>	
<p style="text-align: center;">Laboratorium Internet of Things</p>	
<p>Temat:</p> <p style="text-align: center;">Sensors, Actuators, and Microcontrollers</p>	<p>Autor:</p> <p>Michał Krzysiek</p> <p>Grupa: 3ID15B</p>
Numer laboratorium: 3	Data wykonania : 29.11.18

Screeny z działania servo

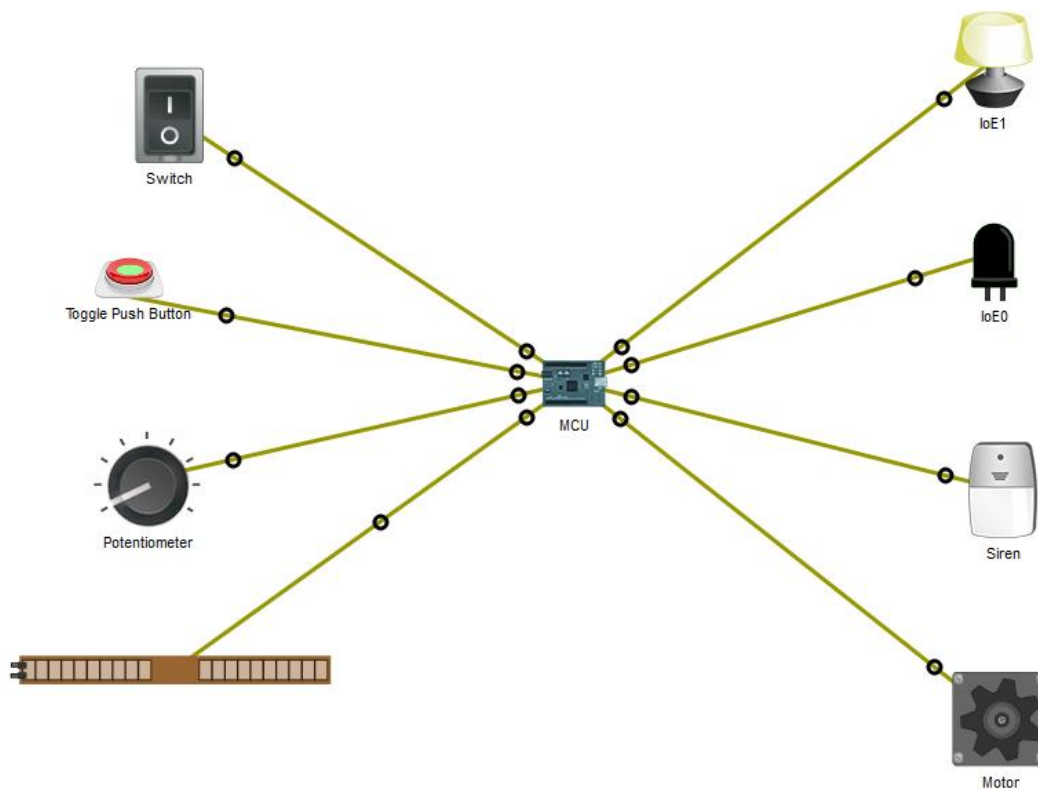


2.3.1.2 Packet Tracer - Sensors and the PT Microcontroller

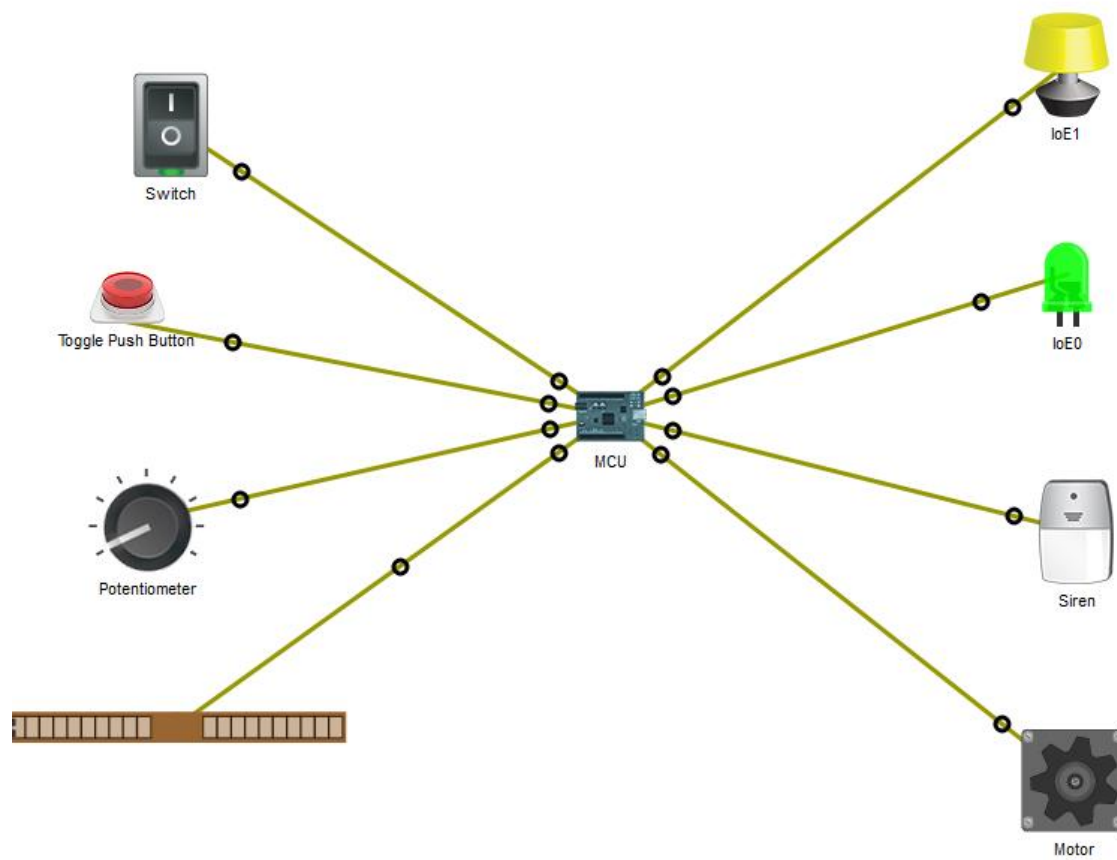
Odwrócone działanie przycisku i przełącznika

```
19
20 def writeToActuators():
21     if (togglePushButtonValue == HIGH): # evaluates to True if the Switch sensor value is digital HIGH, otherwise false
22         customWrite(2, "2") # turn on the Light
23     else:
24         customWrite(2, "0") # turn off the Light
25
26     if (switchValue == HIGH): # evaluates to True if the Toggle Push Button sensor value is digital HIGH, otherwise false
27         digitalWrite(3, HIGH) # turn on the LED
28     else:
29         digitalWrite(3, LOW) # turn off the LED
30
31     if (potentiometerValue > 512): # evaluates to True if the Potentiometer is turned at least half way
32         customWrite(4, HIGH) # turn on the Siren
33     else:
34         customWrite(4, LOW) # turn off the Siren
35
36     if (flexSensorValue > 0): # evaluates to True if the Flex Sensor is bent, otherwise false
37         analogWrite(5, flexSensorValue) # turn on the motor with speed equal to the Flex Sensor value
38     else:
39         analogWrite(5, 0) # turn off the motor
40
```

Działająca lampa za pomocą Button

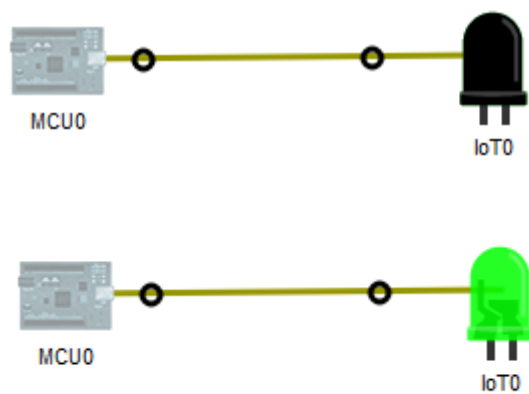


Działająca Dioda LED za pomocą Switch



Challenge:

a) Blinking an LED



b)

```
from gpio import *
```

```
from time import *
```

```
def switchAllLeds(leds, LH):
```

```
    for i in range(1,leds+1):
```

```
        digitalWrite(i, LH)
```

```
def main():
```

```
    pinMode(1, OUT)
```

```
    pinMode(0, IN)
```

```
    initial = 1
```

```
    last = 8
```

```
    buttonPressed=False
```

```
    totalLeds=8
```

```
    switchAllLeds(totalLeds, LOW)
```

```
    while True:
```

```
        valueRead = digitalRead(0)
```

```
        if valueRead>0 and buttonPressed=False:
```

```
            digitalWrite(initial, HIGH)
```

```
            digitalWrite(last, LOW)
```

```
            buttonPressed = True
```

```
        elif valueRead==0 and buttonPressed==True:
```

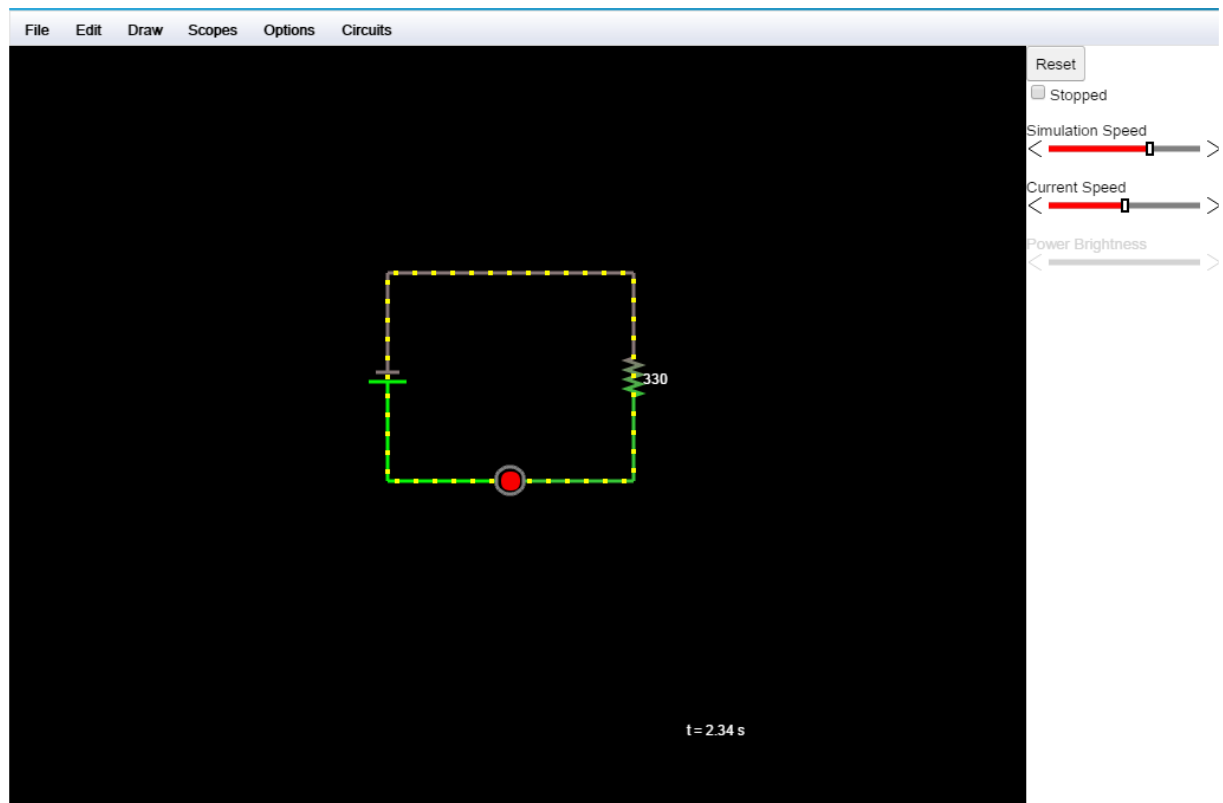
```
            switchAllLeds(totalLeds, LOW)
```

```
            buttonPressed = False
```

```
            last=initial
```

```
            initial=initial%8+1
```

```
        delay(500)
```



What's the voltage on the LED?

1,78V

What's the voltage on the resistor?

3,22V

What voltage of the battery?

5V

Challenge question: Alternating Current (AC) creates square waves or sine waves?

Alternating Current (AC)) creates sine waves.

Wnioski

Laboratorium przebiegło pomyślnie. Pozwoliło nam nauczyć się korzystania czujników oraz programowania w języku Python.