Plant Monitoring/ Maintenance System

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IECE

End Goal

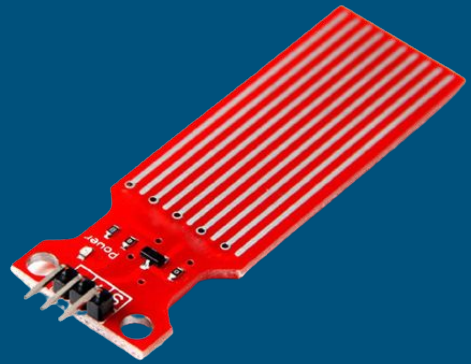
- Monitor Temperature + Humidity
- Control Level of Water of Plant
- Control Temperature with a Fan

Background

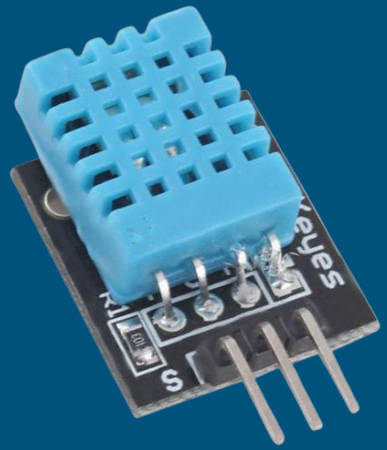
- Hydroponic Propagation
- Monitor surrounding conditions for plants to grow efficiently
- Conditions include temperature, humidity and water level within the container

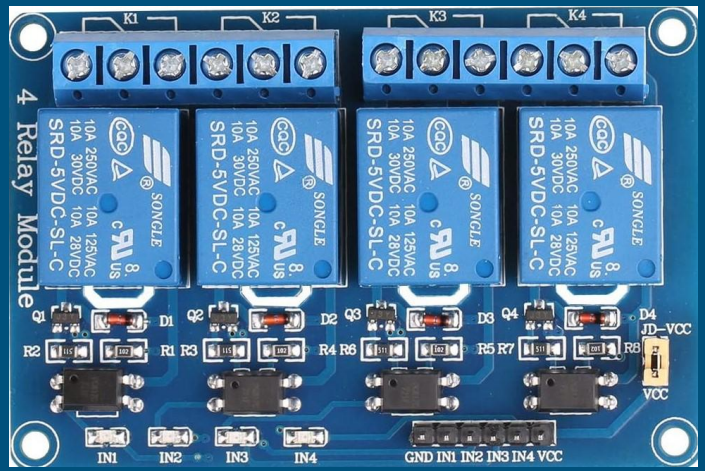
Components

- Water Level Sensor
- Temperature/Humidity Sensor
- Water pump

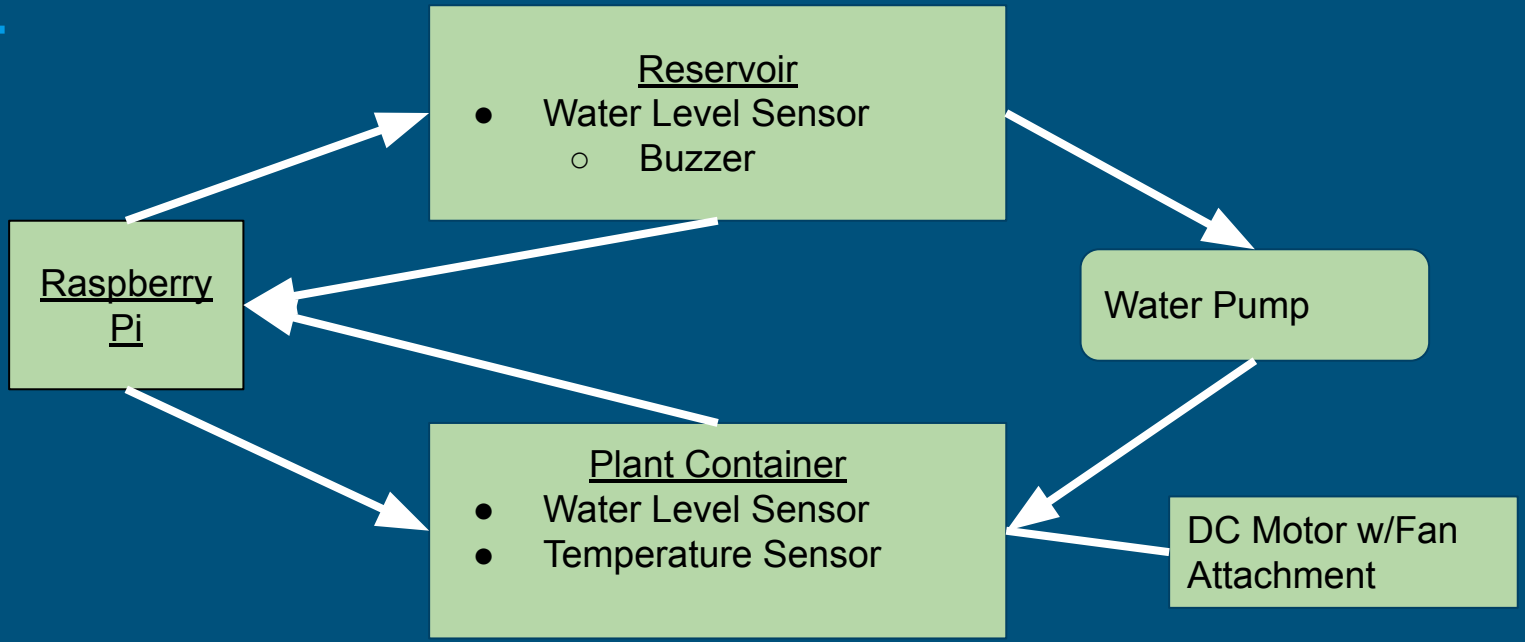


- Buzzer
- *DC Motor*
  - *With Fan Attachment*
- 4 Terminal Relay

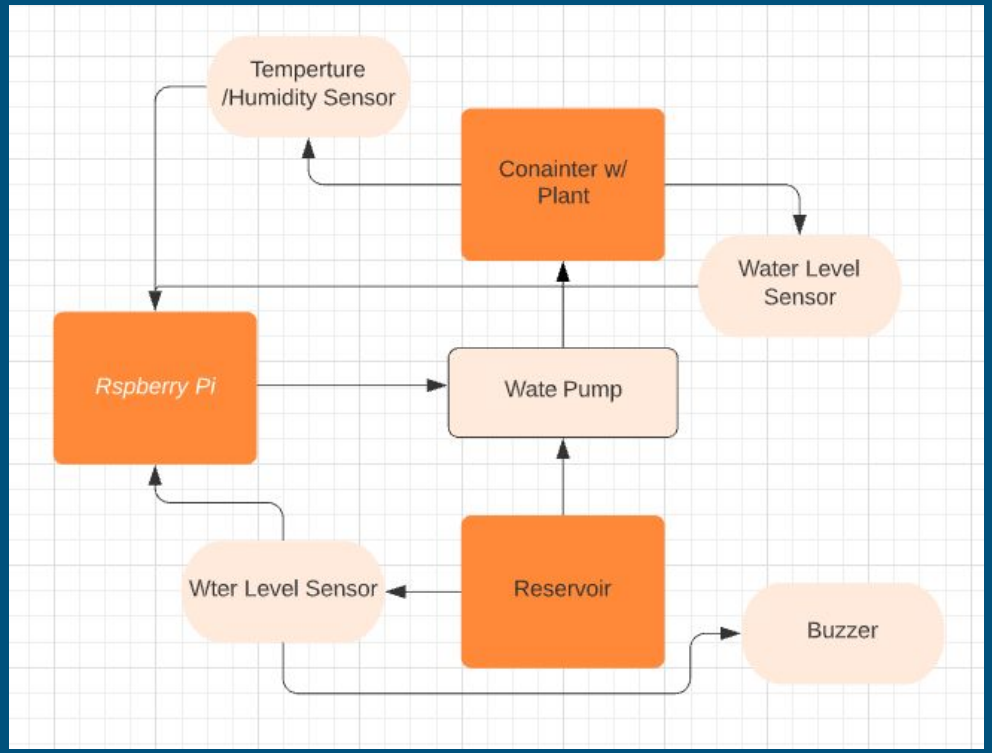




System Diagram - Old

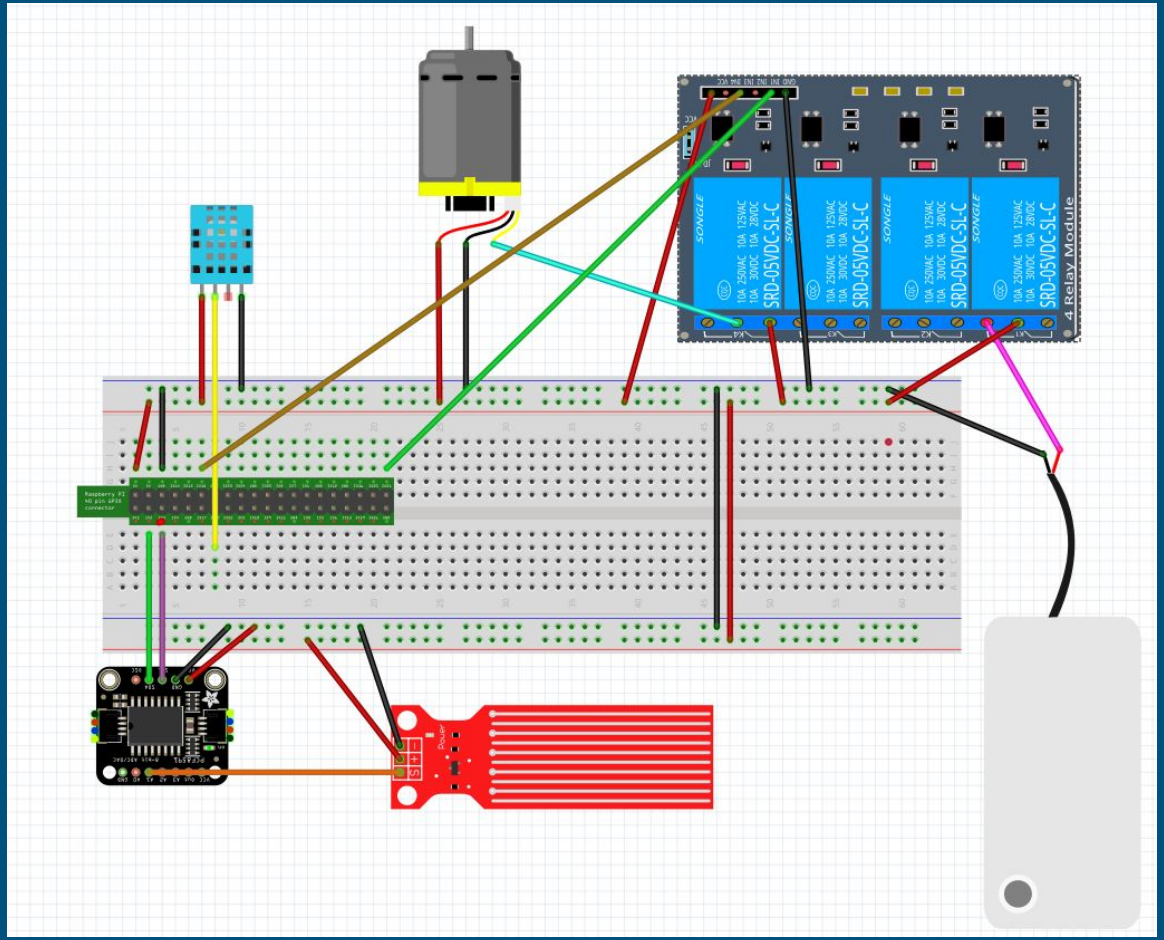


System Diagram - New

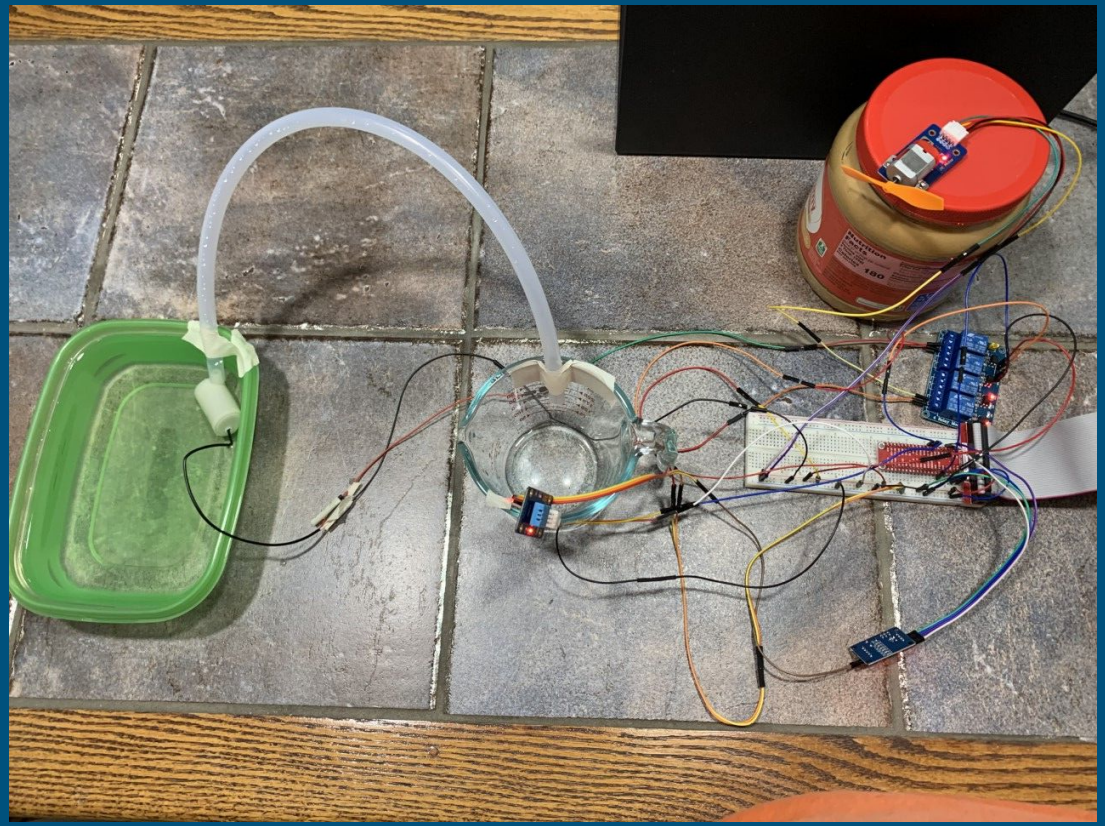


- If Water level is < 130, pump will fill container
- If temperature is > 85, DC Motor will begin to spin
- If Reservoir water level falls below a certain level, buzzer will sound.

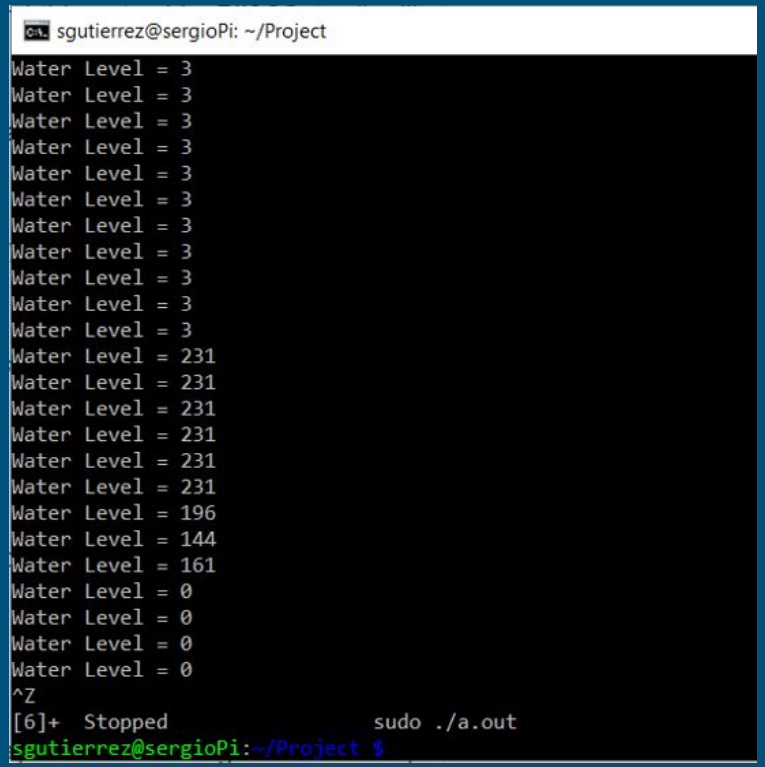
Fritzing Circuit



Circuit



Temperature & Water Level Sensor




```
Current Temp: 78
Current Water Level: 125

Current Temp: 76
Current Water Level: 125
```

Water Pump & DC Motor (Fan)

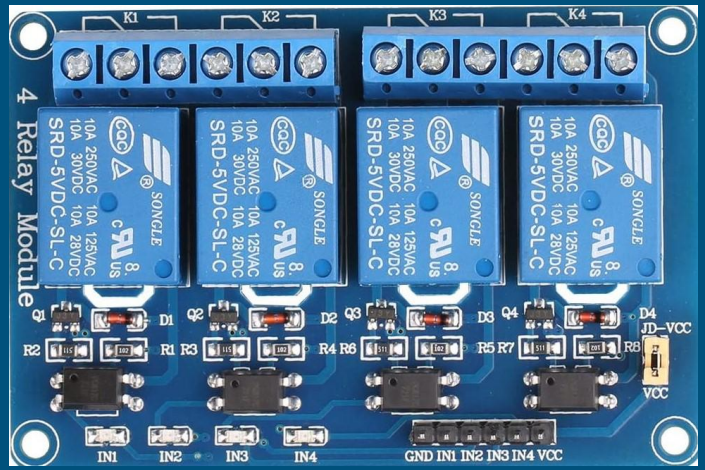
- After checking water level, if below a certain set threshold, would pump water for a small amount of time, then wait for 10 seconds, check and repeat.

```
Current Temp: 97
Current Water Level: 129
```

```
Pumping Water...Current Temp: 76
Current Water Level: 139
```

Relay Module

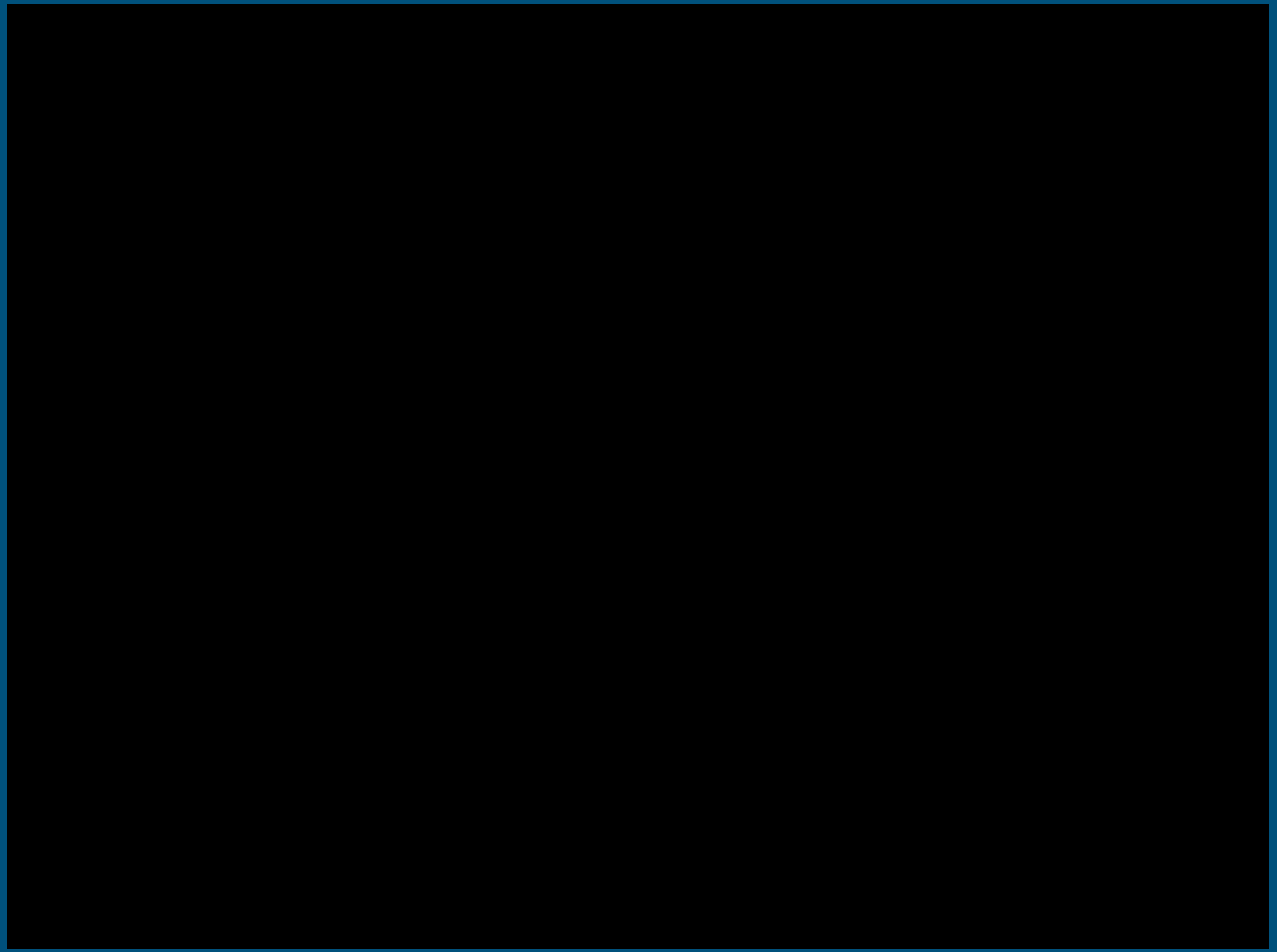
- Three Terminals:
  - NC: normally closed
  - NO: normally open
  - COM
- PUMP:
  - NO: Pump VCC
  - COM: 5V
- DC Motor
  - COM: Motor Input B
  - NC: 5V



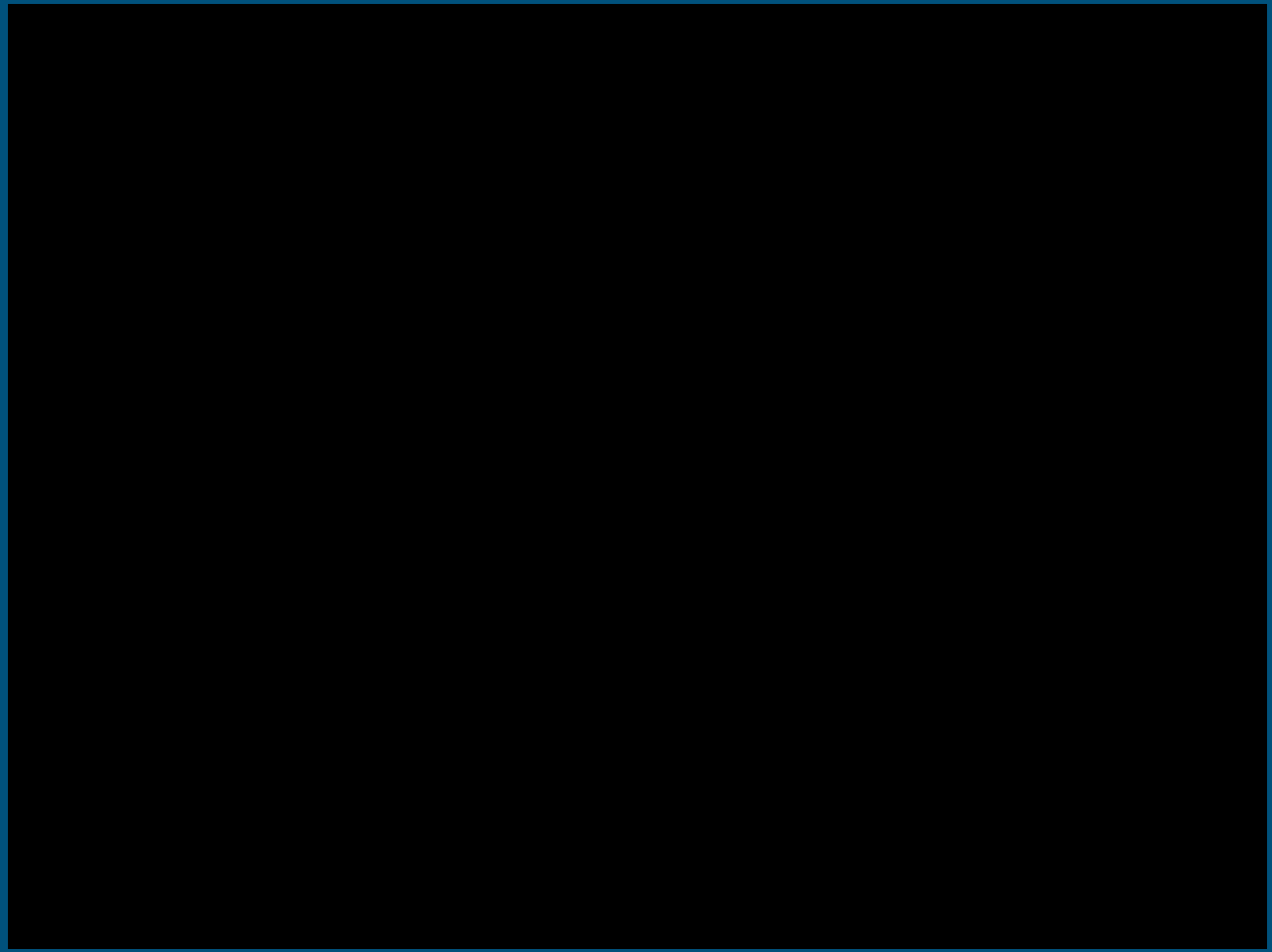
In		Out	
Coil	CO	NC	NO
0	0	0	0
0	1	1	0
1	0	0	0
1	1	0	1

In			Out
Coil	NC	NO	CO
0	0	x	0
0	1	x	1
1	x	0	0
1	x	1	1

Video



Video



Questions?

References

- https://www.relaiscomputer.nl/index.php/elements
- https://www.adeept.com/video/static1/itemsfile/Tutorial.pdf