PROCESS INSTRUMENTATION

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LAB 7:

Aim - Study and implementation of ON-OFF controller

Implementation of ON-OFF controller in Python with neutral zone:

Code:

```
sp = int(input("Enter the set point temperature: "))
mv = int(input("Enter the measured temperature value: "))
nz = int(input("Enter the neutral zone : ")) #Here neutral zone is for positive or negative error
print("\n")


while True:
    if(mv<=sp+nz):
        print("Heater ON")
    else:
        while(mv>sp-nz):
            print("Heater OFF")
            mv = int(input("Enter the new measured temperature value: "))
        print("Heater ON")
    mv = int(input("Enter the new measured temperature value: "))
    if(mv == 0):
        break
```

```
sp = int(input("Enter the set point temperature: "))
mv = int(input("Enter the measured temperature value: "))
nz = int(input("Enter the neutral zone : "))
print("\n")

while True:
    if(mv<=sp+nz):
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    else:
        while(mv>sp-nz):
            print("Heater OFF")
            mv = int(input("Enter the new measured temperature value: "))
        print("Heater ON")
    mv = int(input("Enter the new measured temperature value: "))
    if(mv == 0):
        break
```

OUTPUT:

```
= RESTART: C:/Users/VIVEK RUGLE/AppData/Local/Programs/Python/Python38-32/onoffheaterPI.py
Enter the set point temperature: 60
Enter the measured temperature value: 57
Enter the neutral zone : 2


Heater ON
Enter the new measured temperature value: 50
Heater ON
Enter the new measured temperature value: 61
Heater ON
Enter the new measured temperature value: 63
Heater OFF
Enter the new measured temperature value: 61
Heater OFF
Enter the new measured temperature value: 59
Heater OFF
Enter the new measured temperature value: 57
Heater ON
Enter the new measured temperature value: 0
>>>
```

Conclusion:

Implemented the ON-OFF controller using python programming. Here neutral zone is 58 to 62 C in between which the controller will not change its current state as we can see it in the output.