

Khalid AlAwadhi

Homework 5

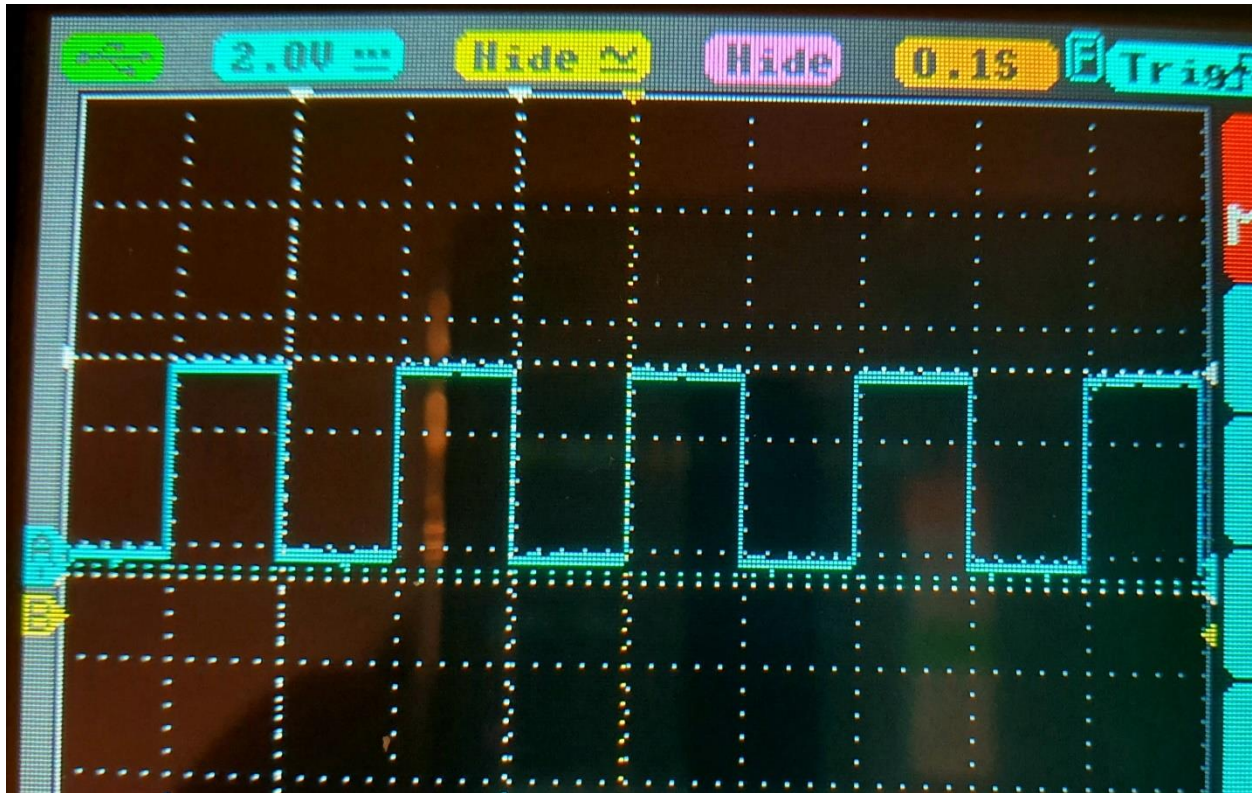
https://github.com/K5Ma/APES/tree/master/HW_5

[Problem 1]

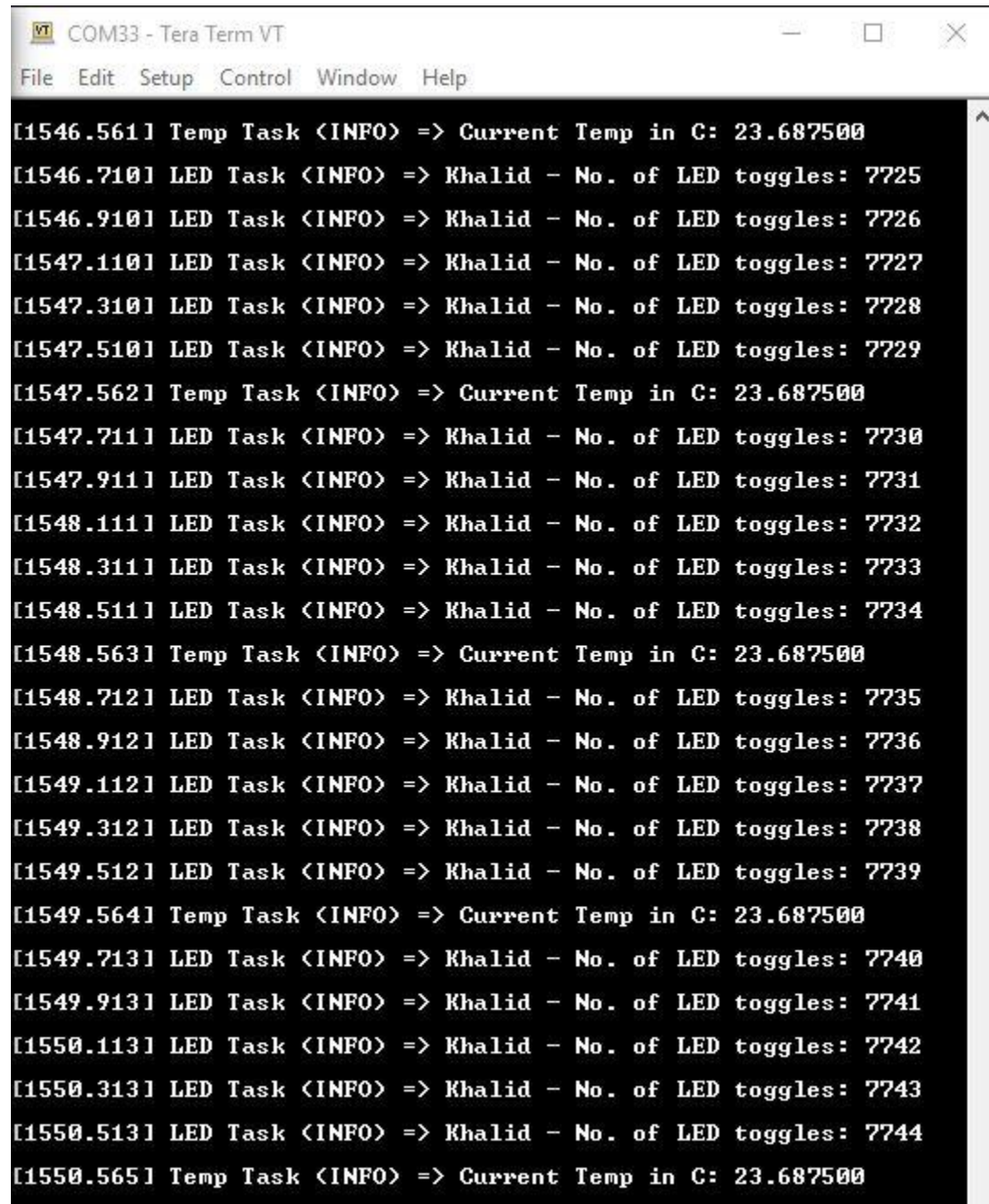
I create my program; all the code can be seen on my GitHub. I tested and it works great.

1) A scope shot of the LED pin switching at the required frequency:

Using my bad but portable oscilloscope, with a division of 0.1, we see a 10Hz toggling frequency.



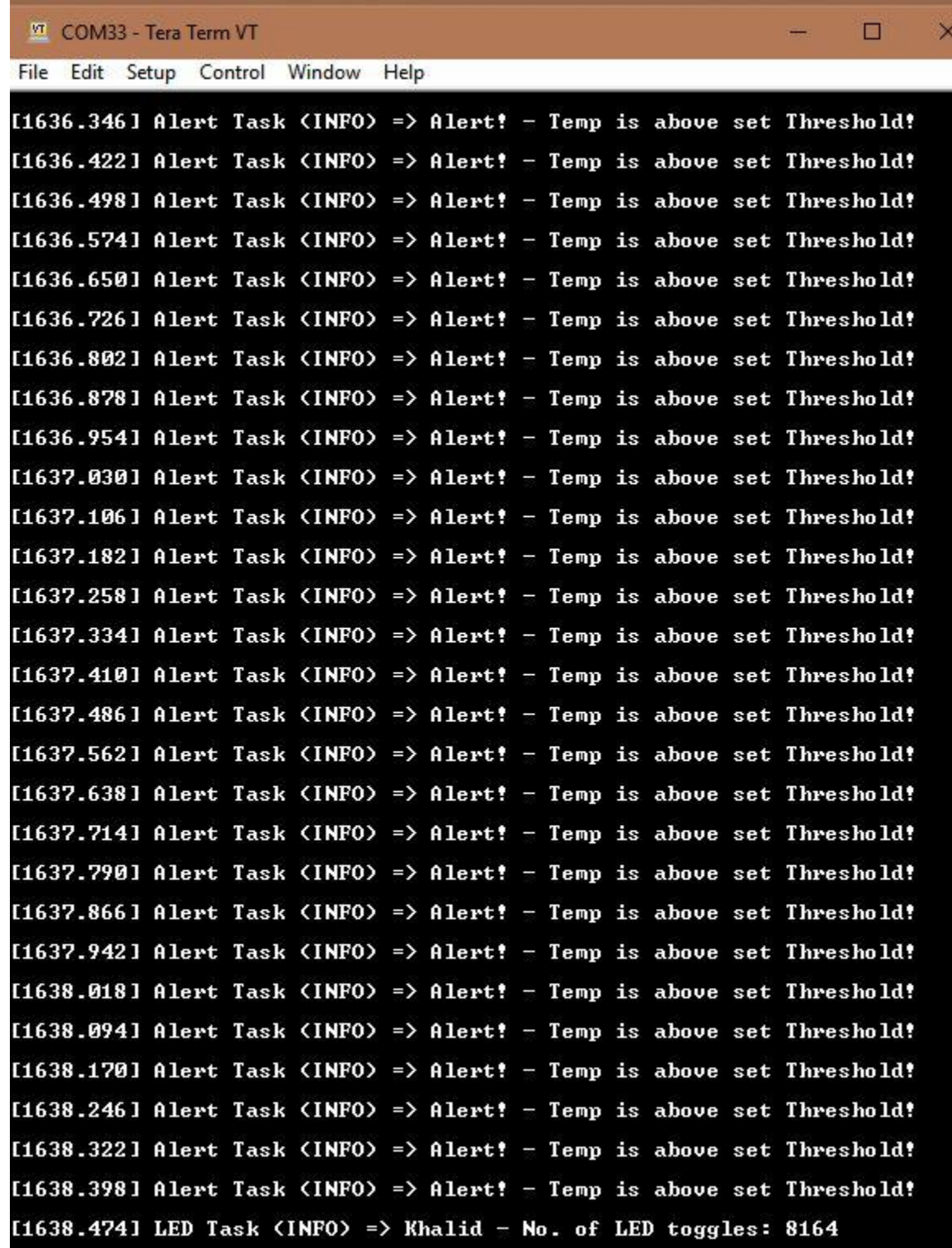
2) Screenshots of UART terminal on HOST machine showing log output of both tasks:



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COM33 - Tera Term VT
File Edit Setup Control Window Help

[[1546.561]] Temp Task <INFO> => Current Temp in C: 23.687500
[[1546.710]] LED Task <INFO> => Khalid - No. of LED toggles: 7725
[[1546.910]] LED Task <INFO> => Khalid - No. of LED toggles: 7726
[[1547.110]] LED Task <INFO> => Khalid - No. of LED toggles: 7727
[[1547.310]] LED Task <INFO> => Khalid - No. of LED toggles: 7728
[[1547.510]] LED Task <INFO> => Khalid - No. of LED toggles: 7729
[[1547.562]] Temp Task <INFO> => Current Temp in C: 23.687500
[[1547.711]] LED Task <INFO> => Khalid - No. of LED toggles: 7730
[[1547.911]] LED Task <INFO> => Khalid - No. of LED toggles: 7731
[[1548.111]] LED Task <INFO> => Khalid - No. of LED toggles: 7732
[[1548.311]] LED Task <INFO> => Khalid - No. of LED toggles: 7733
[[1548.511]] LED Task <INFO> => Khalid - No. of LED toggles: 7734
[[1548.563]] Temp Task <INFO> => Current Temp in C: 23.687500
[[1548.712]] LED Task <INFO> => Khalid - No. of LED toggles: 7735
[[1548.912]] LED Task <INFO> => Khalid - No. of LED toggles: 7736
[[1549.112]] LED Task <INFO> => Khalid - No. of LED toggles: 7737
[[1549.312]] LED Task <INFO> => Khalid - No. of LED toggles: 7738
[[1549.512]] LED Task <INFO> => Khalid - No. of LED toggles: 7739
[[1549.564]] Temp Task <INFO> => Current Temp in C: 23.687500
[[1549.713]] LED Task <INFO> => Khalid - No. of LED toggles: 7740
[[1549.913]] LED Task <INFO> => Khalid - No. of LED toggles: 7741
[[1550.113]] LED Task <INFO> => Khalid - No. of LED toggles: 7742
[[1550.313]] LED Task <INFO> => Khalid - No. of LED toggles: 7743
[[1550.513]] LED Task <INFO> => Khalid - No. of LED toggles: 7744
[[1550.565]] Temp Task <INFO> => Current Temp in C: 23.687500
```

3) (BONUS) If attempting, Screenshot of UART terminal showing alert:
I set my alert threshold to be 29 C, result below:



The screenshot shows a Tera Term VT terminal window titled "COM33 - Tera Term VT". The window has a menu bar with "File", "Edit", "Setup", "Control", "Window", and "Help". The terminal output consists of 25 lines of text, each starting with a timestamp in brackets, followed by "Alert Task <INFO> => Alert! - Temp is above set Threshold!". The timestamps range from [1636.346] to [1638.474]. The final line is "[1638.474] LED Task <INFO> => Khalid - No. of LED toggles: 8164".

```
COM33 - Tera Term VT
File Edit Setup Control Window Help

[1636.346] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.422] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.498] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.574] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.650] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.726] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.802] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.878] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1636.954] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.030] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.106] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.182] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.258] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.334] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.410] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.486] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.562] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.638] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.714] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.790] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.866] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1637.942] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.018] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.094] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.170] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.246] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.322] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.398] Alert Task <INFO> => Alert! - Temp is above set Threshold!
[1638.474] LED Task <INFO> => Khalid - No. of LED toggles: 8164
```