
GEBZE TECHNİCAL UNIVERTİSY

ELEC 335

LAB 4 REPORT

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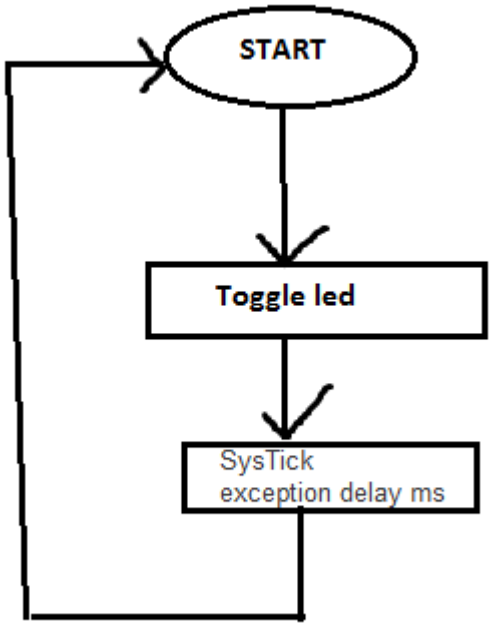
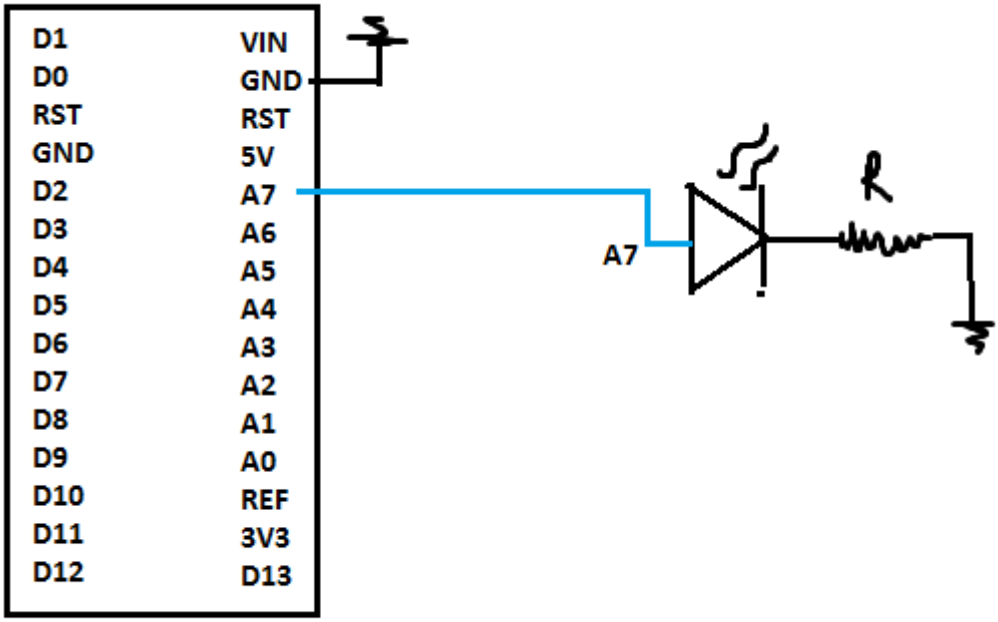
**PROBLEM 1:**

Create a SysTick exception with 1 millisecond interrupt intervals. Then create a delay_ms(..) function.




**Flowchart**




**Connection Diagram**

-How would you measure the accuracy of your delay using software methods?

```
14
15 void TIM1_BRK_UP_TRG_COM_IRQHandler(void){
16
17     BSP_led_set();
18      delay_ms(LEDDELAY);/*wait 1 millisecond*/
19     TIM1->SR &= ~(1U << 0);
20 }
21
```

We understand if we create a break point like in the figure.

-How would you measure the accuracy of your delay using hardware methods?

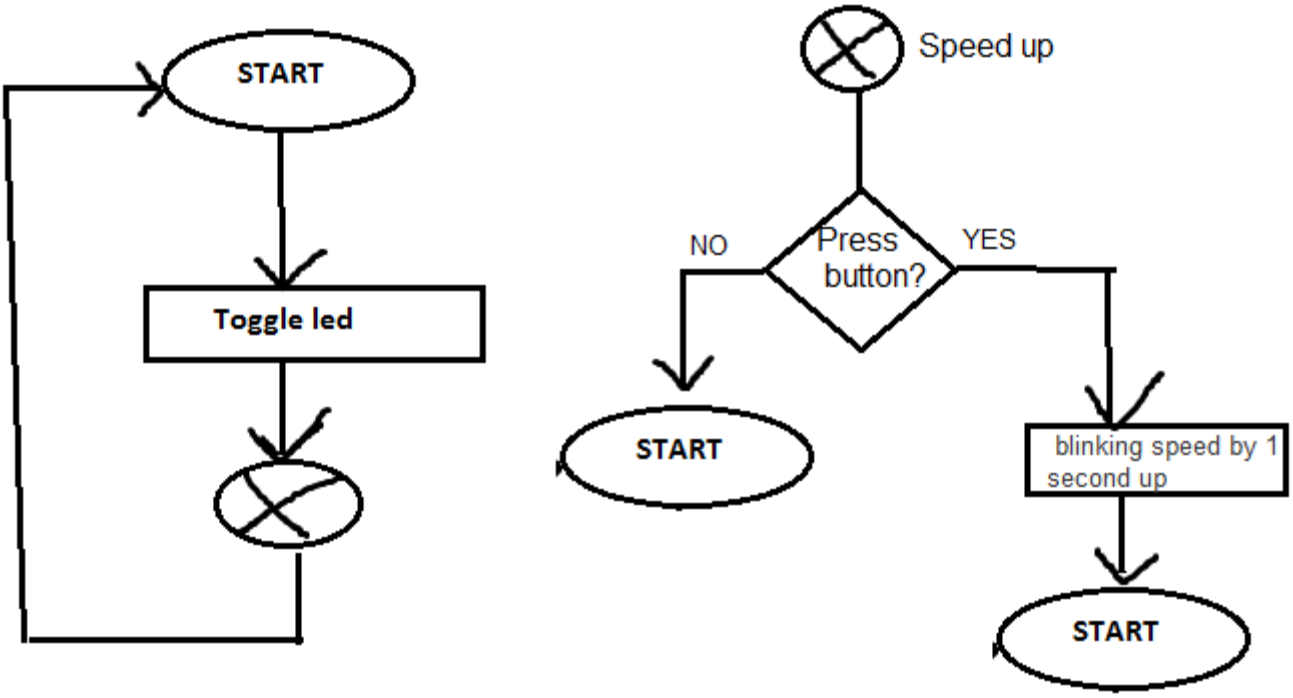
I think we use watchdog timer but I don’t known how it’s done.

**1.Problem video:**

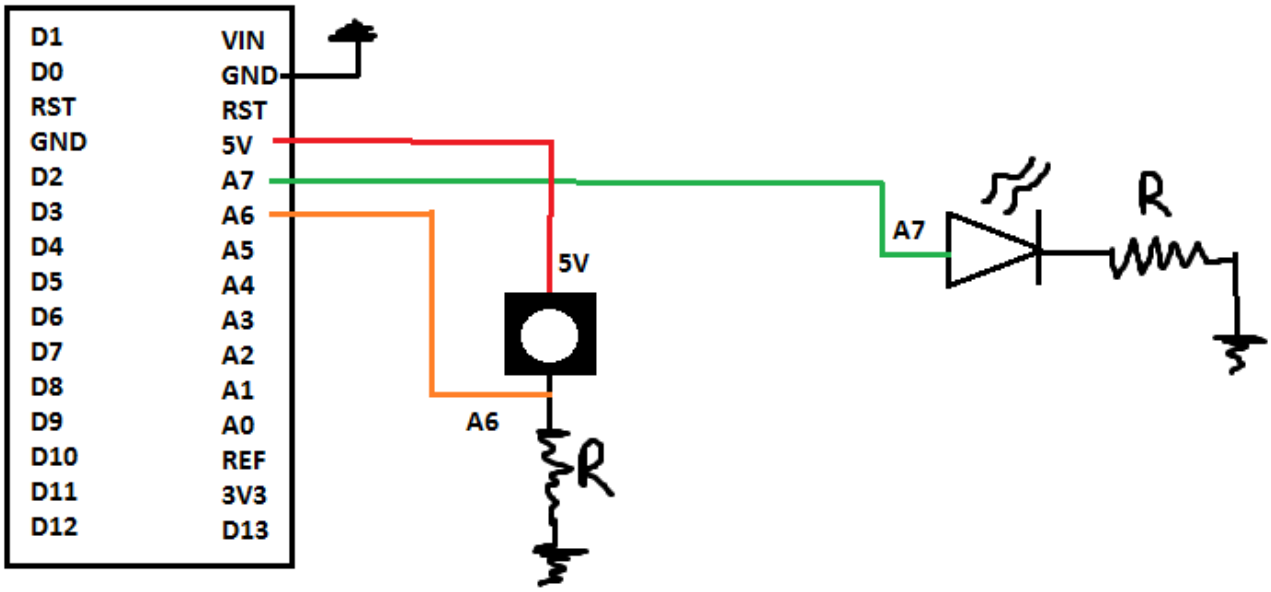
https://youtu.be/AWLkSlQQCIw

**PROBLEM 2:**

Set up a timer with lowest priority that will be used to toggle on-board LED at 1 second intervals. Change the blinking speed using an external button. Each button press should increase the blinking speed by 1 second up to a maximum of 10 seconds.




**Flowchart**



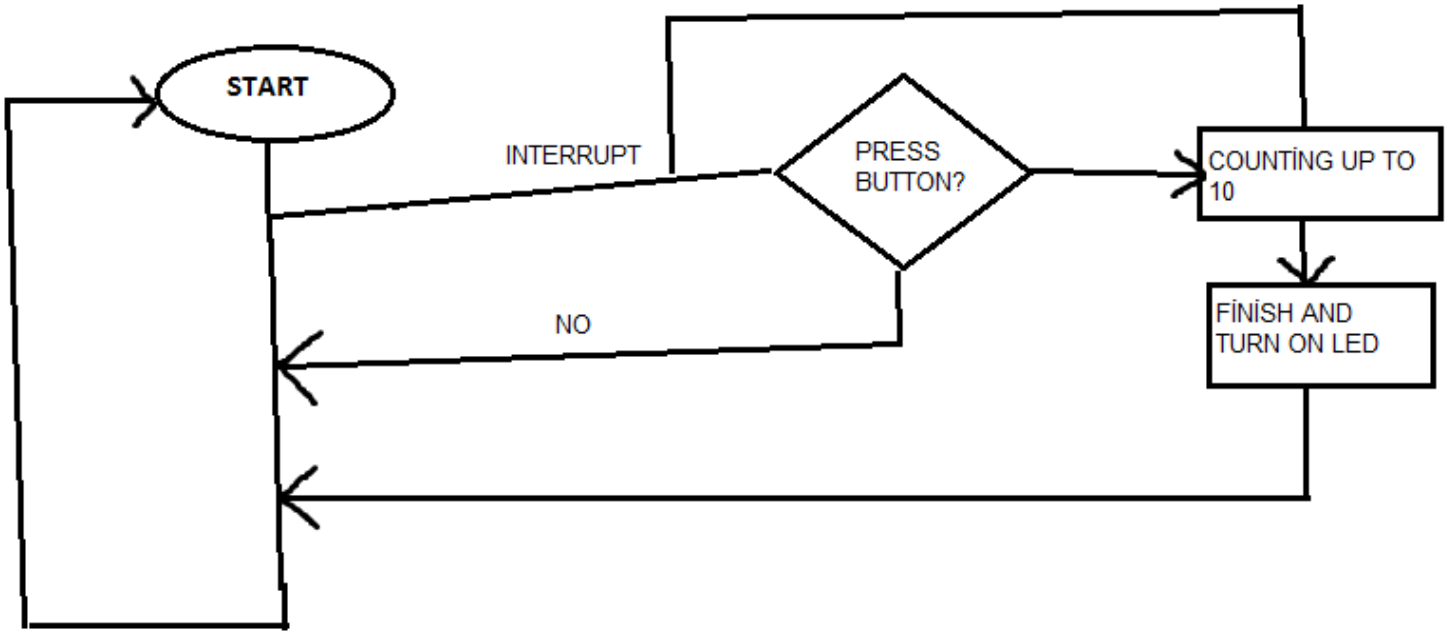

**Connection Diagram**

**2.Problem video:**

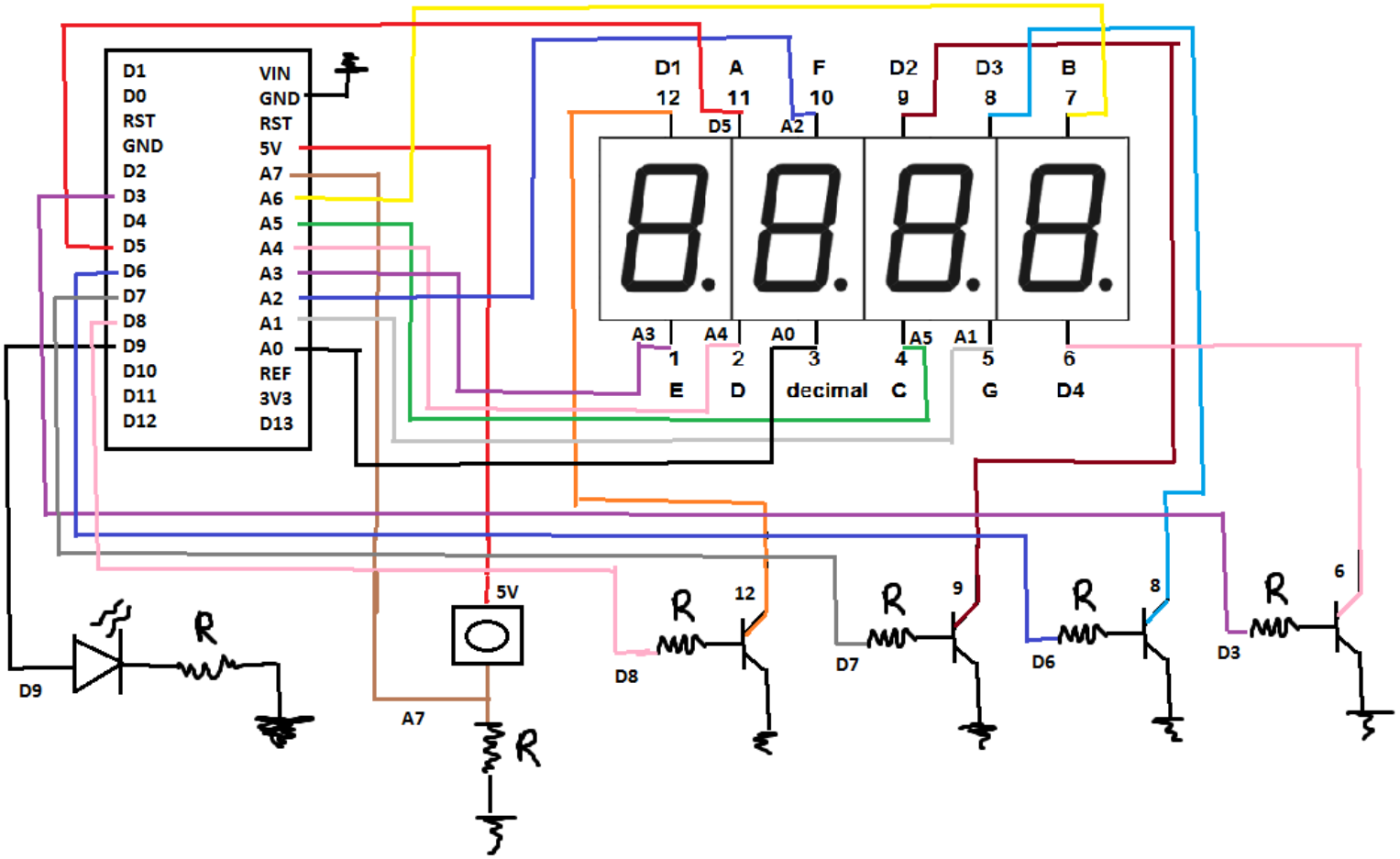
https://youtu.be/U9iSbq8lRHI

**PROBLEM 3:**

Counter ,counting from 01 to 10.




**Flowchart**




**Connection Diagram**

My deficiency in this problem is that I did not know how to do the LEDs at same time.

**3.Problem video:**

https://youtu.be/xu6UV4vBBKs

## PROBLEM 4:

Setup either window or indepdentent watchdog timer and observe its behavior in the simple blinky example from the repo. Calculate the appropriate reset time and implement it. Add the necessary handler routine for reseting the device.

I could not complete because I do not know how to add indepdentent watchdog timer in this problem.

## PROBLEM 5:

Likewise I could not complete because I do not know how to add indepdentent watchdog timer in this problem.