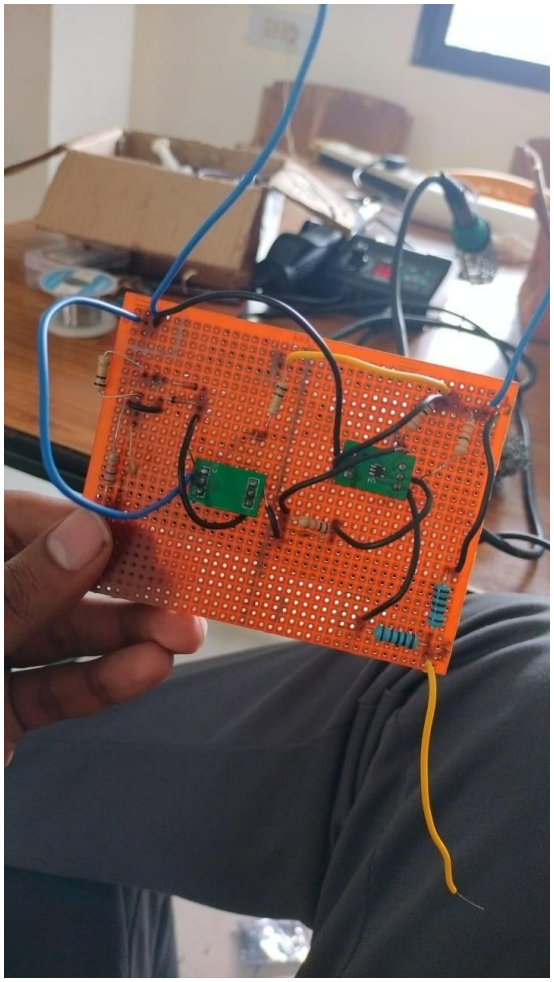
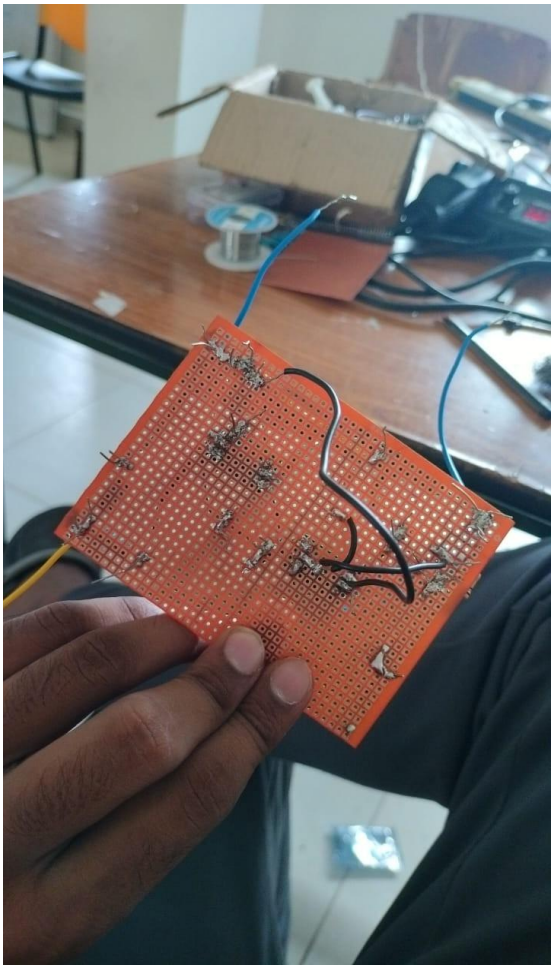
TEST@7/5/2025

Using perfboard:

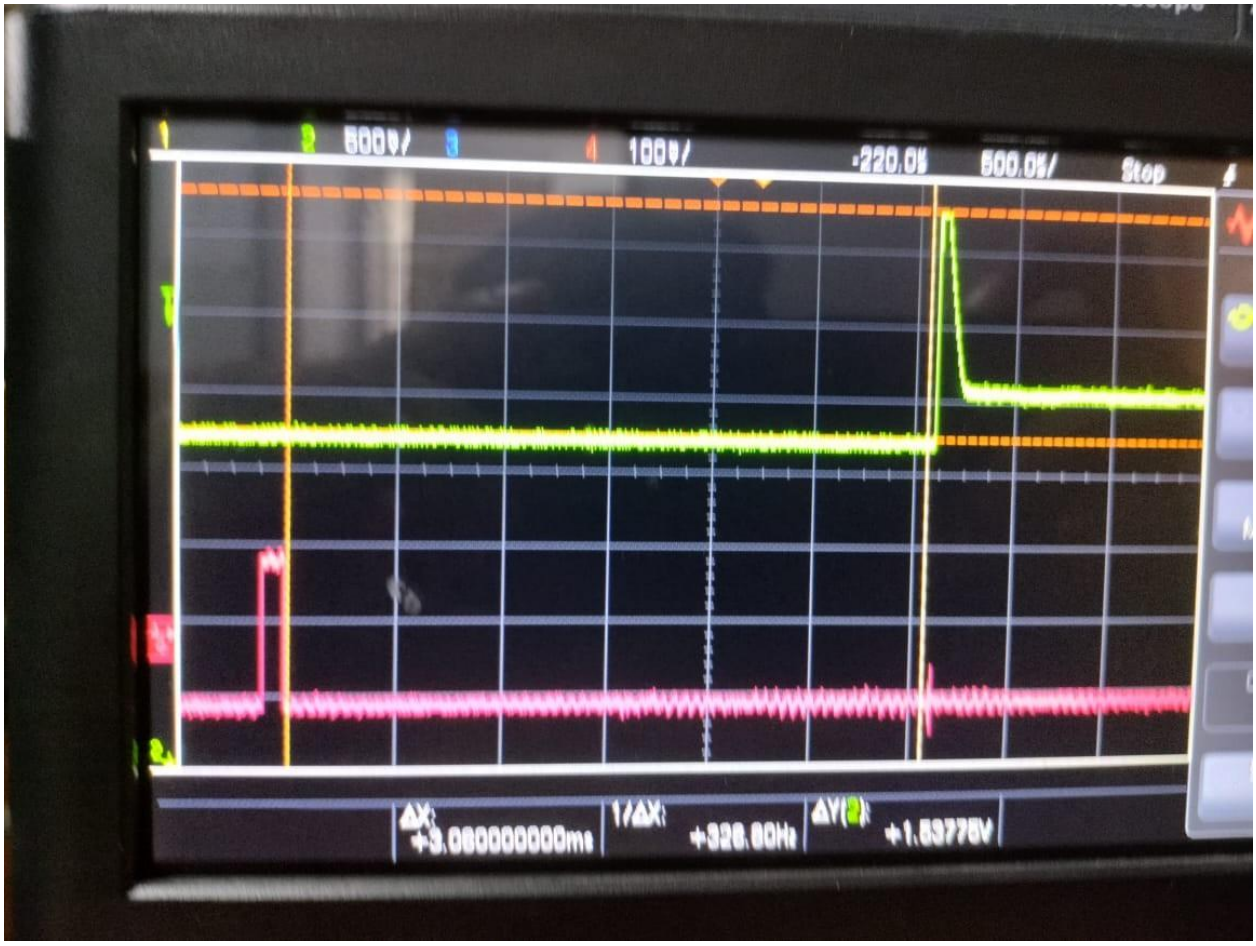




1) **USING FUNCTION GENERATOR {input 50mV,freq 10Hz}**

INPUT: pulse with 10ns rise time; 50ns delay time

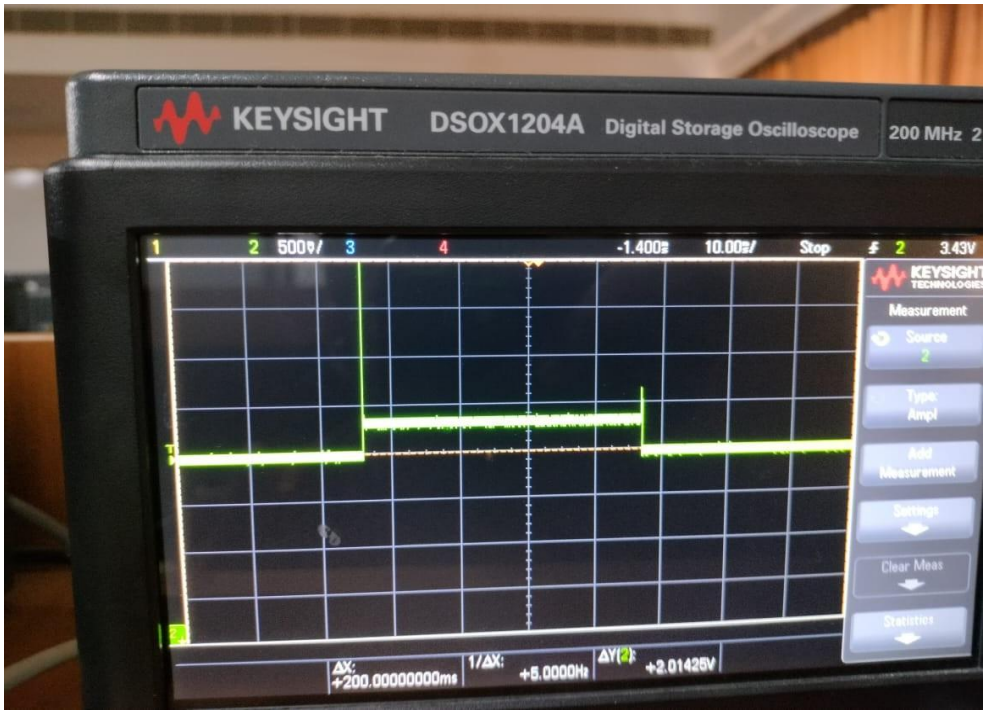
Green – output | **Red –** input

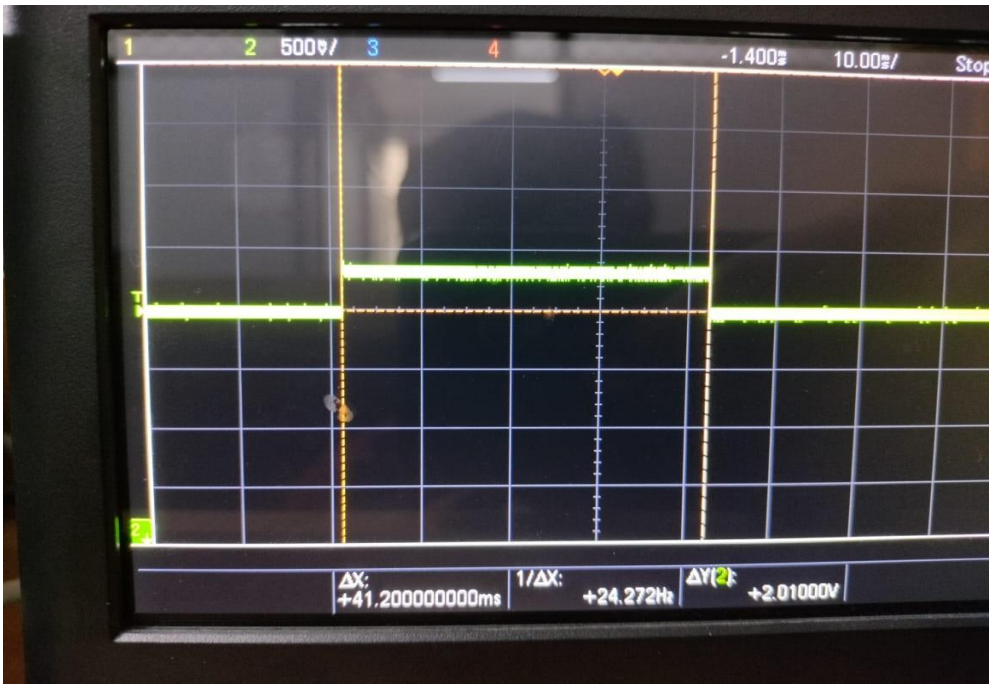


OBSERVATIONS:

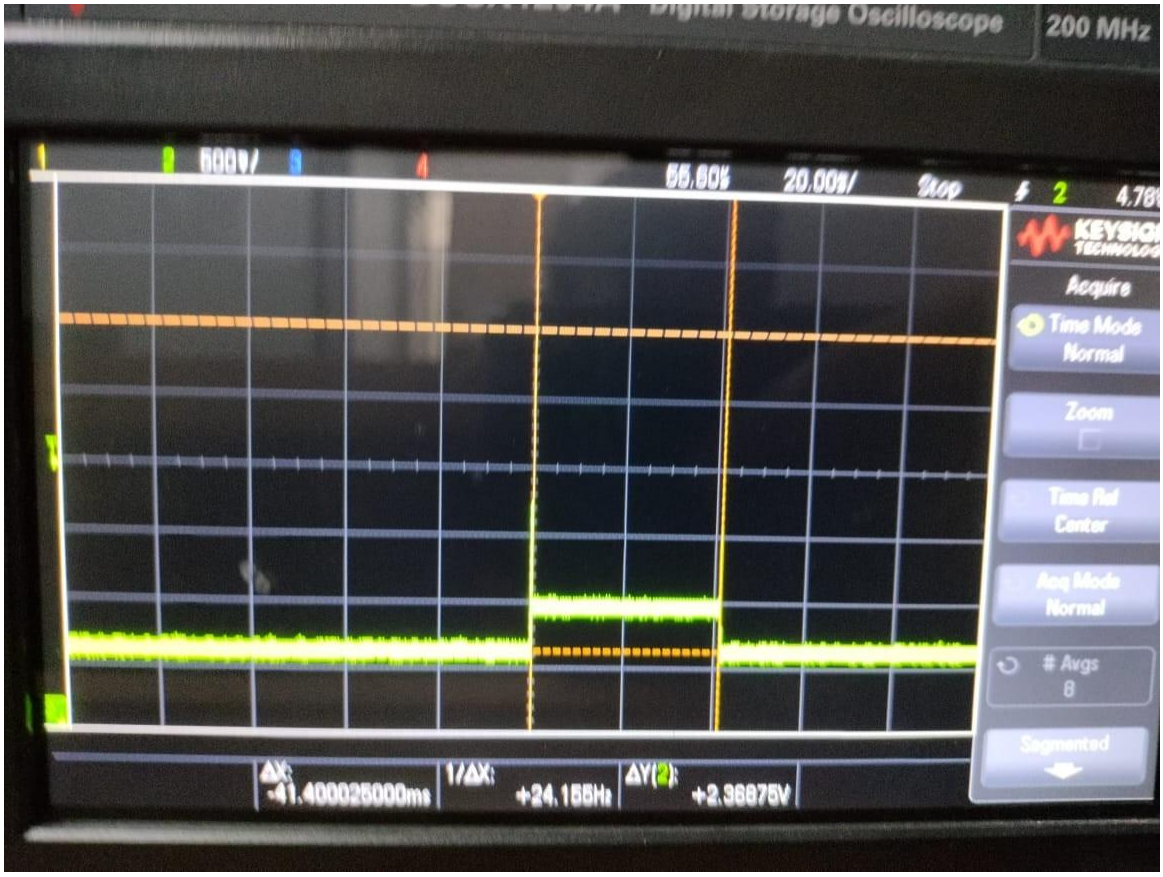
- There is a time delay of 3ms between the pulse signal and the output signal because of the diodes used.
    - Germanium diodes {precision diodes OA79} are used.
- Schottky diodes have the least possible delay, while germanium diode has delay in them.

The output alone:

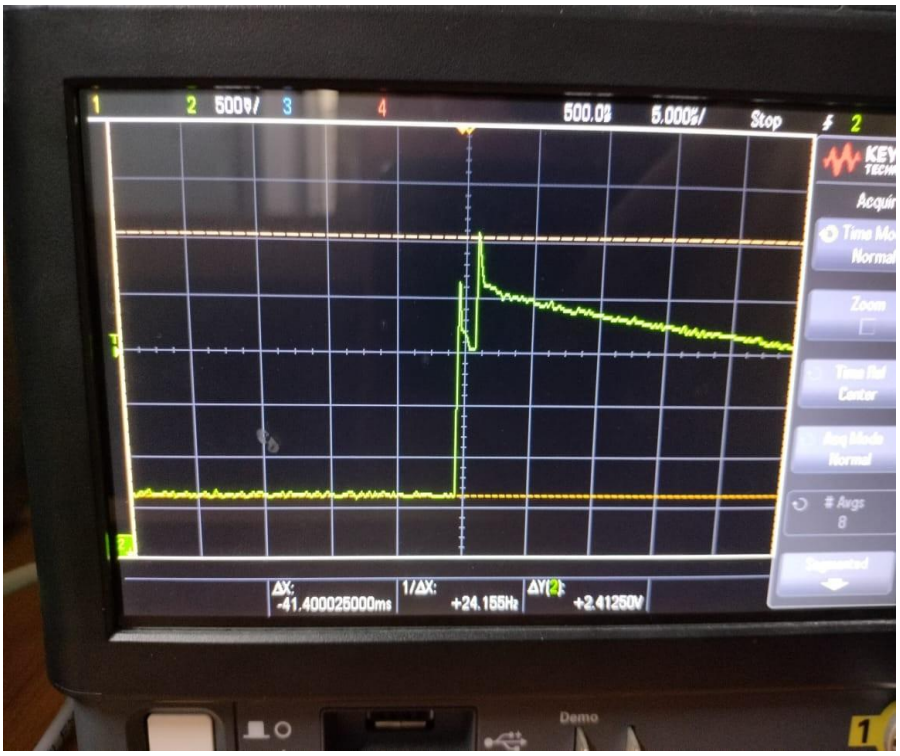




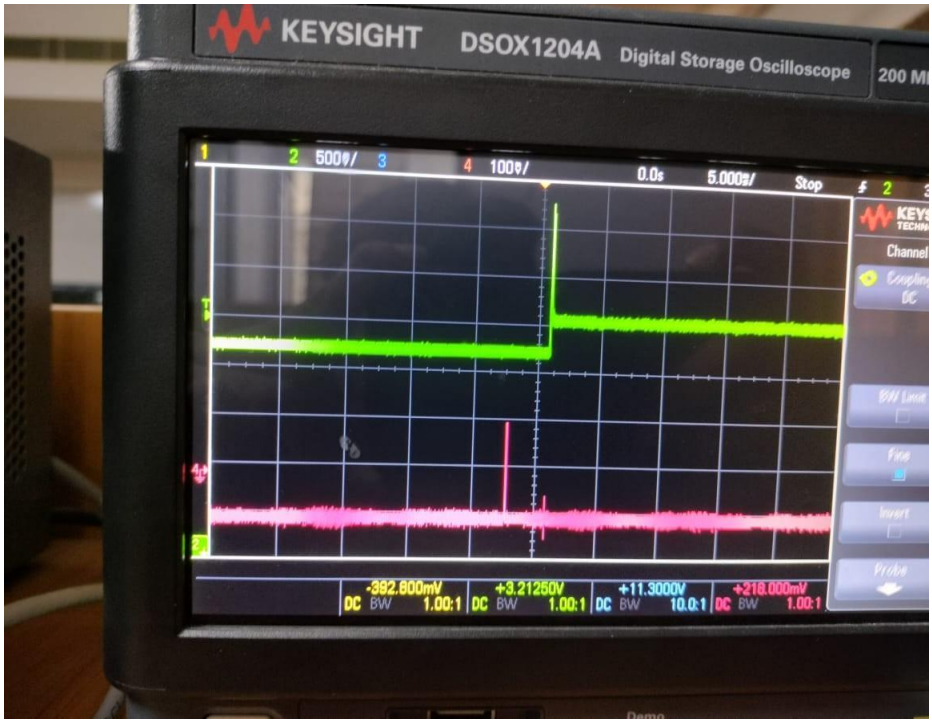
<u>The output reached around 2V and the peak was held for 41ms</u>.

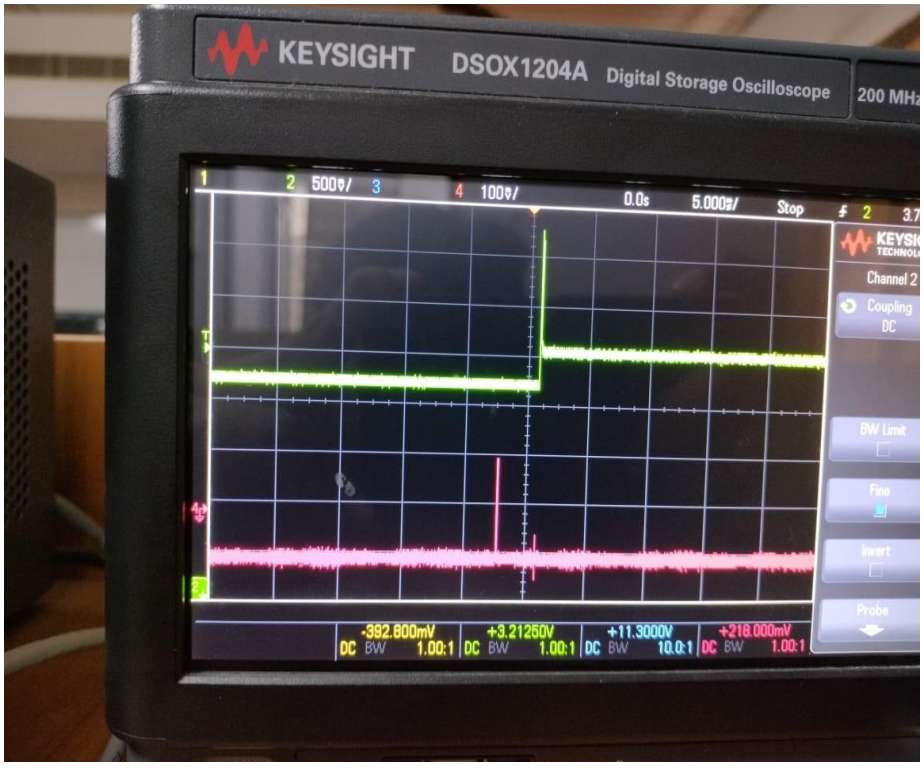


The output voltage and hold time increased slightly when the input was 100mV.



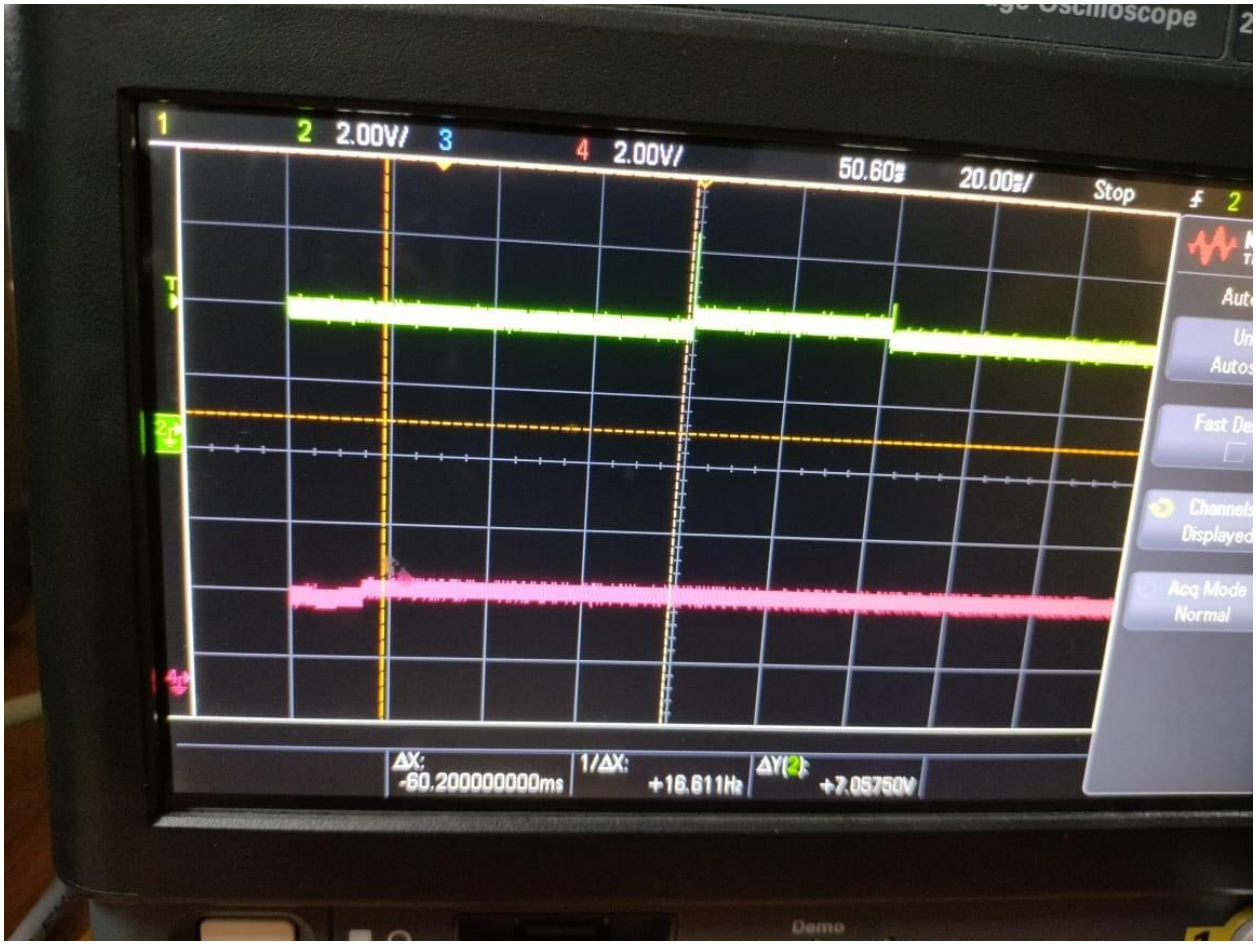
A zoomed in version with 500ns scale revealed the characteristics of peak and hold circuit.





A zoomed-out image at 5ms scale reveals the amplification and the delay time associated with it.

2) Using SiPM with flash light setup {phone's flashlight was used}

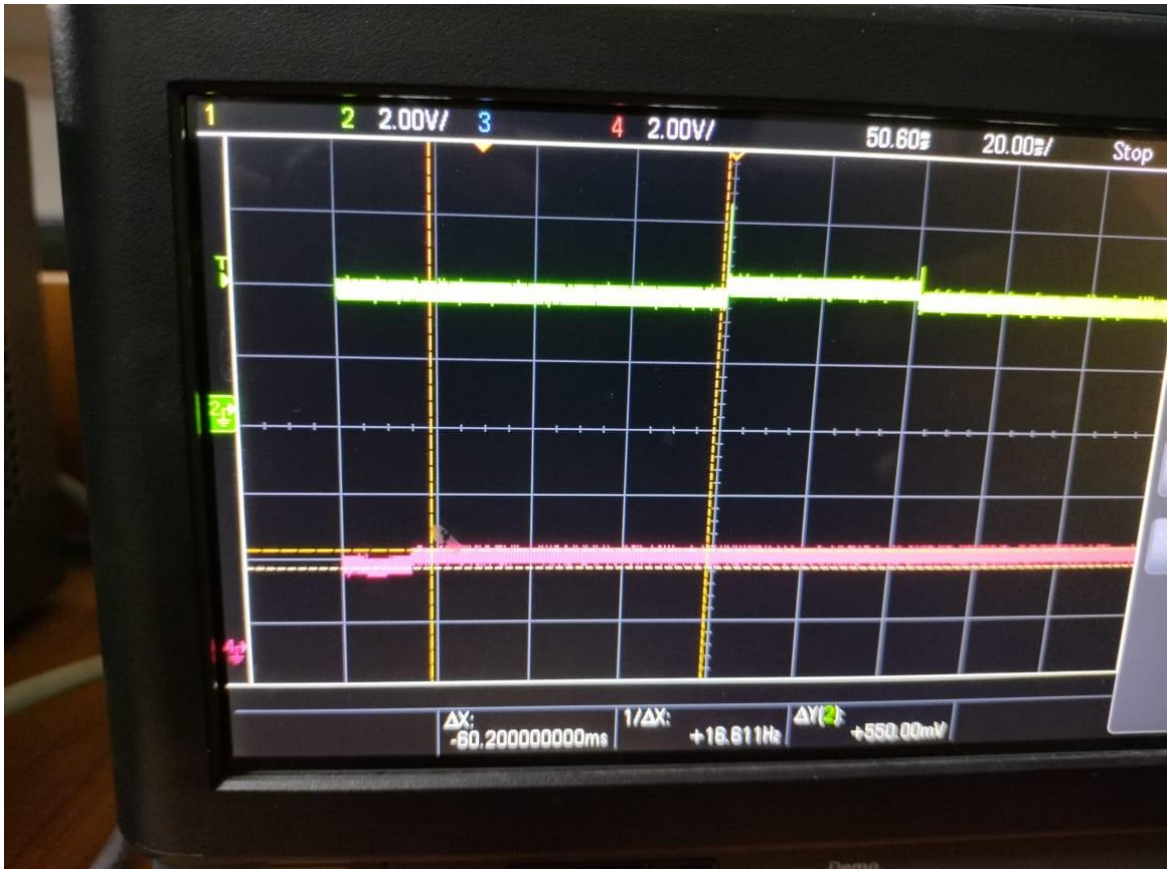


OBSERVATIONS:

- Delay time between input and output increased to 60ms maybe because of less voltage produced by SiPM and the external environment factors like lab's lighting (assumption) or maybe because of the not very sharp increase in the input signal because of the torchlight.

Another case where the delay time is around 70ms.

There were lot of cases (where we forgot to take the photos of other cases), and the delay was in the range of 50ms - 80ms.


1
2 2.00V/
3
4 2.00V/
50.60ms
20.00ms/
Stop
ΔX:
-60.200000000ms
1/ΔX:
+16.611Hz
ΔY(2):
+550.00mV


1
2 2.00V/
3
4 2.00V/
73.00ms
20.00ms/
Stop
ΔX:
+71.200000000ms
1/ΔX:
+14.045Hz
ΔY(2):
-2.95000V