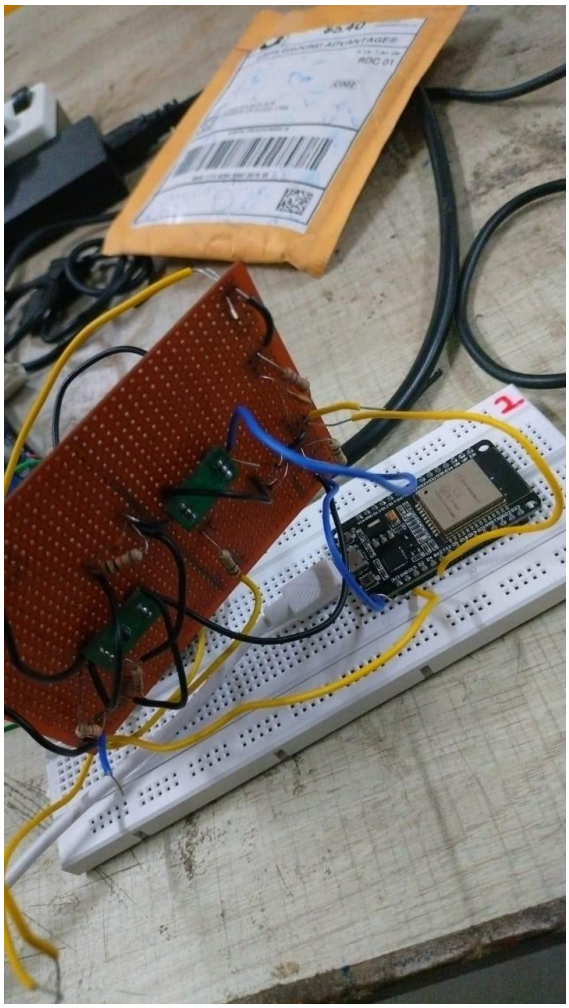
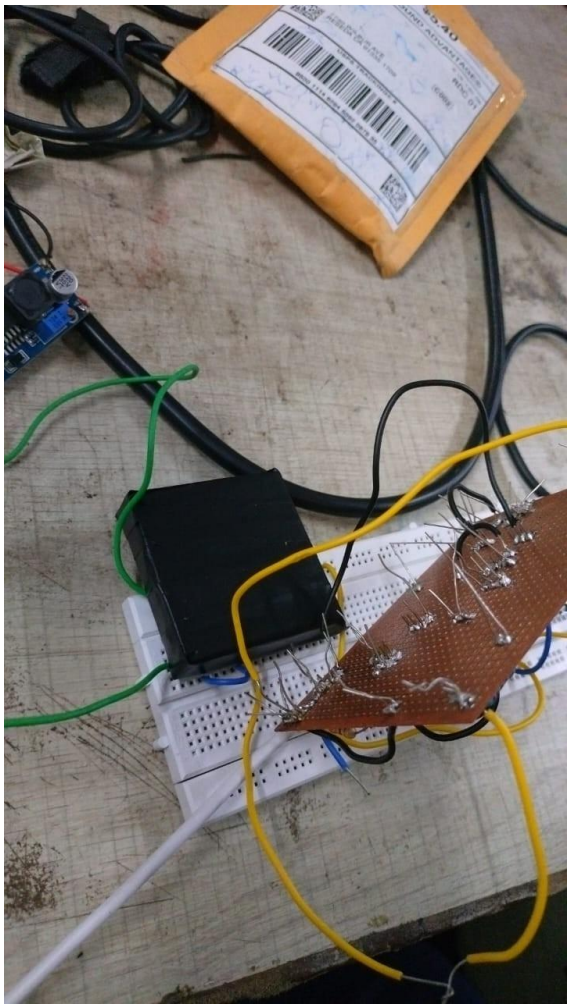
TEST@11 MAY 2025 - 12 MAY 2025

With BC408 Plastic Scintillator

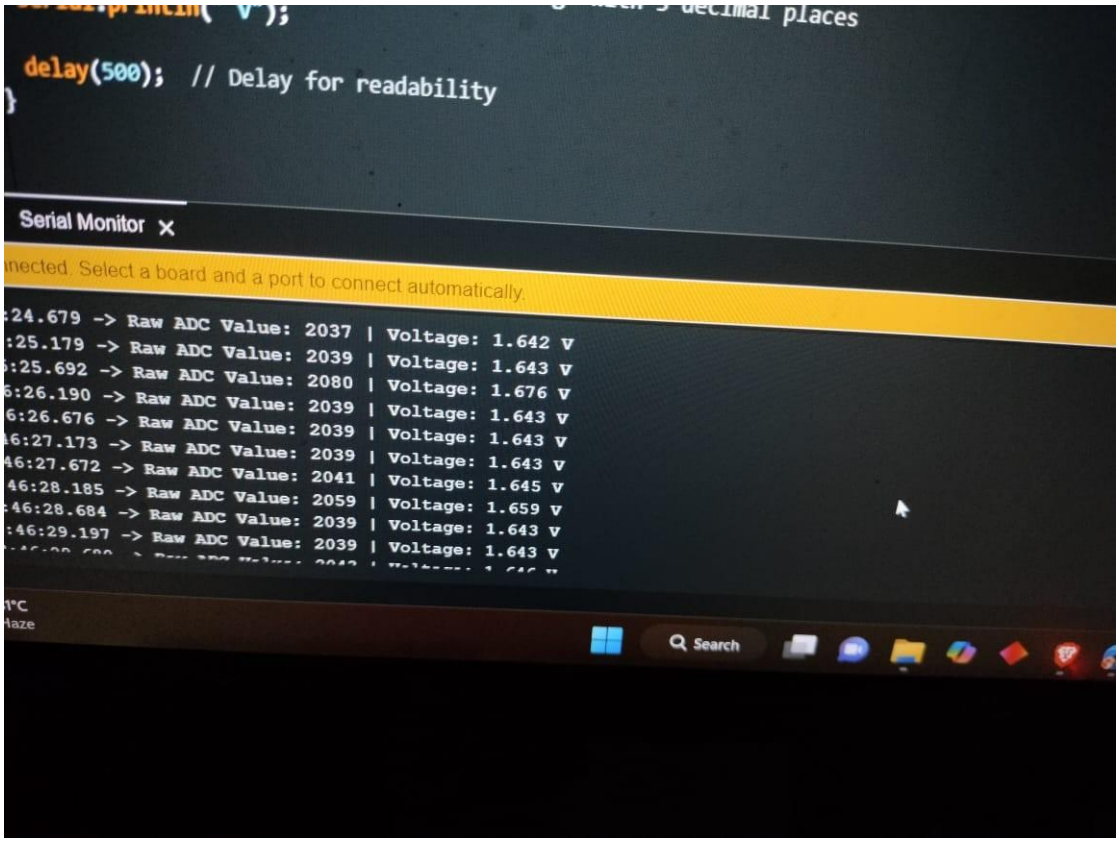
SETUP:





- BC408 wrapped in aluminum and then SiPM is placed and the setup is covered in black tape.
- The test was conducted in a dark room and vaseline was not used as we did not have it.
- The number of muon counts was noted for 1 min & it was repeated for 5 times .

1)



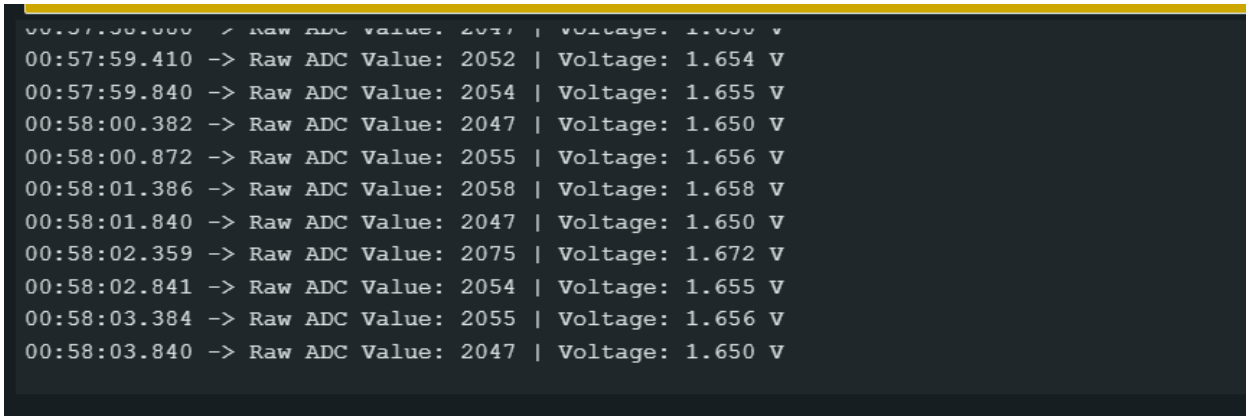
A total of 3 hits were noted.

2)

```
00:49:31.888 -> Raw ADC Value: 2062 | Voltage: 1.662 V
00:49:32.350 -> Raw ADC Value: 2054 | Voltage: 1.655 V
00:49:32.869 -> Raw ADC Value: 2047 | Voltage: 1.650 V
00:49:33.368 -> Raw ADC Value: 2047 | Voltage: 1.650 V
00:49:33.865 -> Raw ADC Value: 2047 | Voltage: 1.650 V
00:49:34.379 -> Raw ADC Value: 2054 | Voltage: 1.655 V
00:49:34.894 -> Raw ADC Value: 2047 | Voltage: 1.650 V
00:49:35.348 -> Raw ADC Value: 2054 | Voltage: 1.655 V
00:49:35.882 -> Raw ADC Value: 2047 | Voltage: 1.650 V
00:49:36.398 -> Raw ADC Value: 2047 | Voltage: 1.650 V
```

A total of 4 hits were noted.

3)



A total of 3 hits were noted.

(I forgot to take the photos of the other 2 tests but similar results of 3 hits and 4 hits happened)

OBSERVATION:

- The count is matching with the average count that should hit a 5cm x 5cm area scintillator according to cosmic watch.

FOR 3D PRINTED SCINTILLATOR:

We used the 3.9 mm scintillator and it was used for 3 times with a duration of 1 min each.

1)

```
02:32:00.179 -> Raw ADC Value: 1708 | Voltage: 1.376 V
02:32:00.664 -> Raw ADC Value: 1710 | Voltage: 1.378 V
02:32:01.189 -> Raw ADC Value: 1711 | Voltage: 1.379 V
02:32:01.687 -> Raw ADC Value: 1719 | Voltage: 1.385 V
02:32:02.200 -> Raw ADC Value: 1708 | Voltage: 1.376 V
02:32:02.664 -> Raw ADC Value: 1709 | Voltage: 1.377 V
02:32:03.179 -> Raw ADC Value: 1705 | Voltage: 1.374 V
```

Two times muon hit.

2)

```
02:23:26.697 -> Raw ADC Value: 1713 | Voltage: 1.380 V
02:23:27.196 -> Raw ADC Value: 1714 | Voltage: 1.381 V
02:23:27.711 -> Raw ADC Value: 1719 | Voltage: 1.385 V
02:23:28.195 -> Raw ADC Value: 1715 | Voltage: 1.382 V
02:23:28.693 -> Raw ADC Value: 1715 | Voltage: 1.382 V
02:23:29.191 -> Raw ADC Value: 1712 | Voltage: 1.380 V
02:23:29.690 -> Raw ADC Value: 1728 | Voltage: 1.393 V
02:23:30.200 -> Raw ADC Value: 1712 | Voltage: 1.380 V
02:23:30.700 -> Raw ADC Value: 1714 | Voltage: 1.381 V
02:23:31.187 -> Raw ADC Value: 1715 | Voltage: 1.382 V
02:23:31.702 -> Raw ADC Value: 1713 | Voltage: 1.380 V
```

1 muon hit.

3) Muon hits count - 2

Note:

- The delta voltage is quite less because of the usage of 3.9mm,
- The code should be optimized so as to prevent drifts that occur over time.
- Because of the usage of Germanium diodes instead of schottky, the delta voltage is less.