Department of Electronic and Telecommunication Engineering, University of Moratuwa

EN2532 Robot Design and Competition

Laboratory Sheet-Practical No: 3

Indexes:	220399B, 220619D, 220491B, 220626Y, 220502M	Date:	06 / 10 / 2024
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1. Test your setup by placing an object in front of the sensor and varying its distance.
    i. How does the voltage change as you vary the distance?

It increased during a very small distance, then it decreases with the distance.

    ii. At a constant distance, how stable is the voltage?

It has regular spikes and ∴ the stability is low

2. Program the microcontroller using the code "Sharp sensor reading with smoothing" given in the appendix 2
    i. Place the object at a constant distance and observe the stability of the voltage.
        a) Stability increased or decreased?

Increased

        b) Reason for observation (refer the code)?

It averages the values during a certain time interval. so it smoothens out the value by eliminating the spikes.

    ii. Fill the following table

Distance from sensor (cm)	A2D converter reading	Distance from sensor (cm)	A2D converter reading
05	376	20	543
10	550	30	419
15	587	40	320
18	560	50	250

    iii. Find the maximum distance that the sensor can read by varying the distance of the object smoothly around the suspected maximum value.

90cm