

2DX4: Microprocessor System

PreLab 8

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As a future member of the engineering profession, the student is responsible for performing the required work in an honest manner, without plagiarism and cheating. Submitting this work with my name and student number is a statement and understanding that this work is our own and adheres to the Academic Integrity Policy of McMaster University and the Code of Conduct of the Professional Engineers of Ontario. Submitted by [**Junbo Wang wangj430 400249823**]

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1.

ToF sensors use lidar to measure distance. It uses a pulsed laser to produce light with a wavelength of 940nm, which reflects back to the sensor after hitting the item. It calculates distance by measuring the travel time of light. Distance $d = c * t / 2$.

2.

The VL53L1X ToF sensor unit is millimeter (mm).

3.

There are 16 bits for one distance measurement.

4.

There will be 7 to 8 bits that can be transmitted at once using UART serial communication.

5.

If the data is larger than one serial package, it divides the data into several parts, each part is the size of one serial package, and sends/receives these parts one by one. Also, it has an acknowledgment bit after it so that the receiver can reassemble the data afterwards.