Neato XV11 Lidar Development Using PIC32MX Microcontroller

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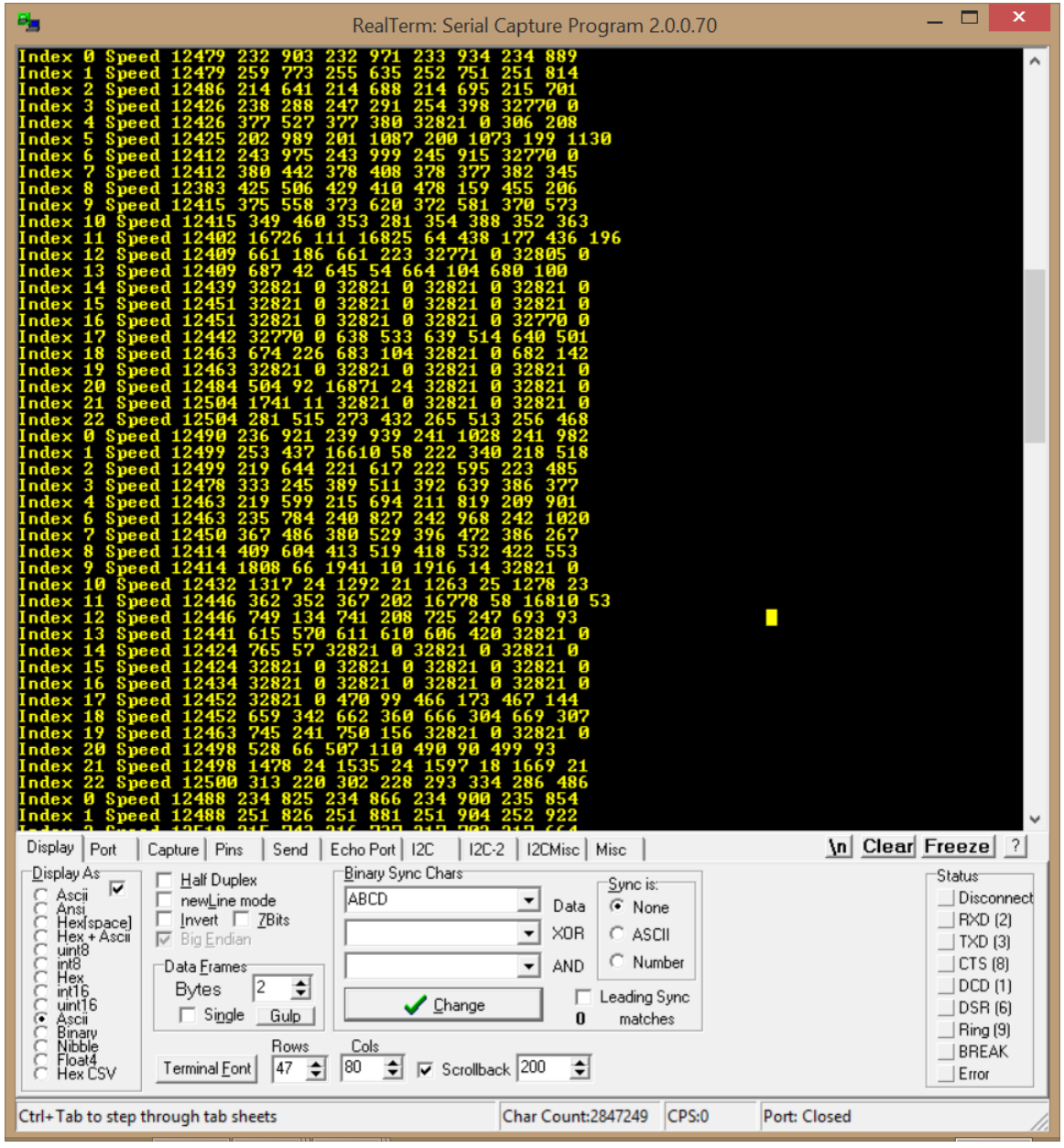
CRC

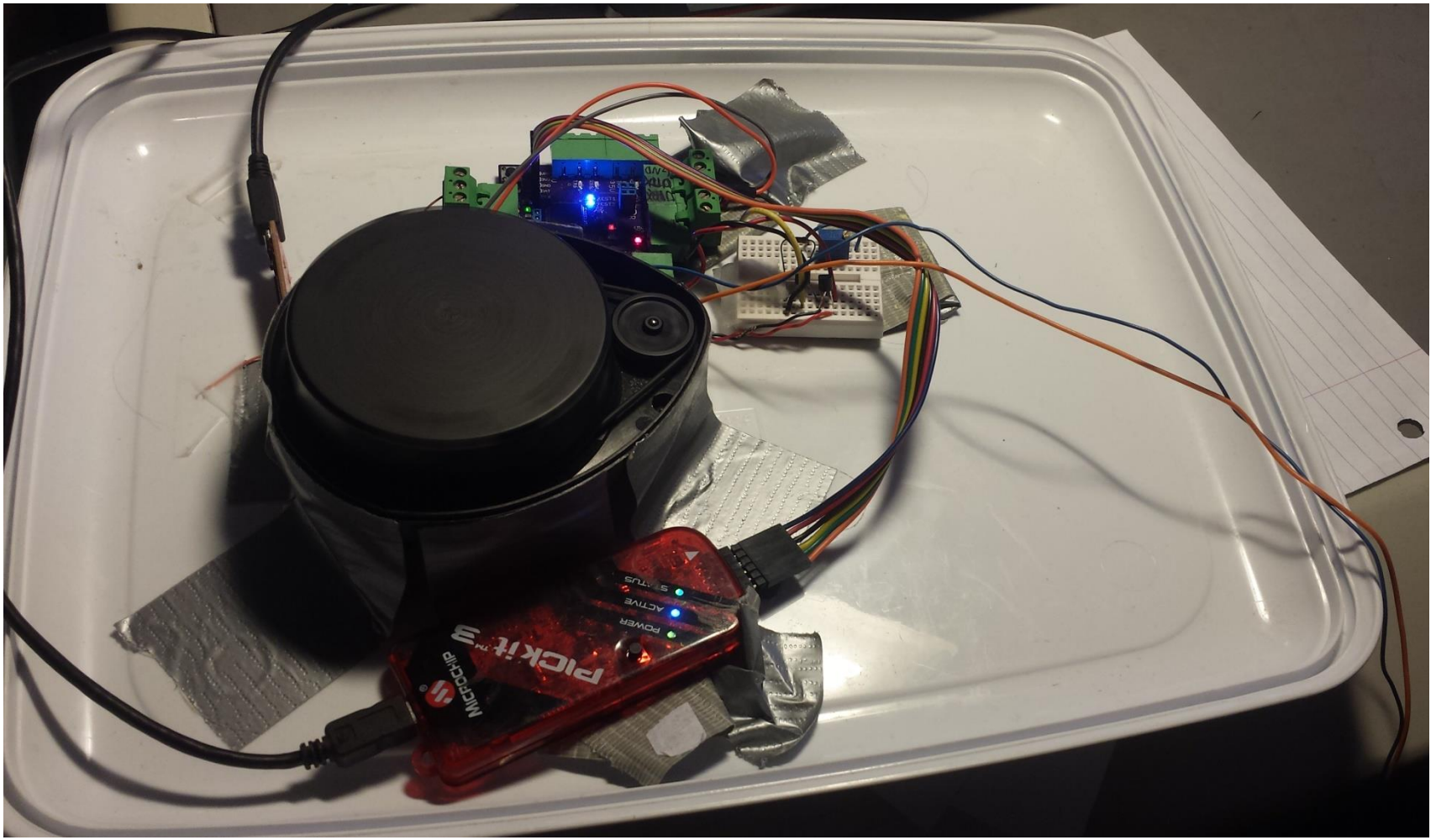
- A Cyclical Redundancy Check is a method to verify that the received data is valid.
- The CRC used here is two bytes added on the end of the data message. The two bytes are compared with the received first bytes in green below.

<start> <index> <speed_L> <speed_H> [Data 0] [Data 1] [Data 2] [Data 3] <checksum_L> <checksum_H>

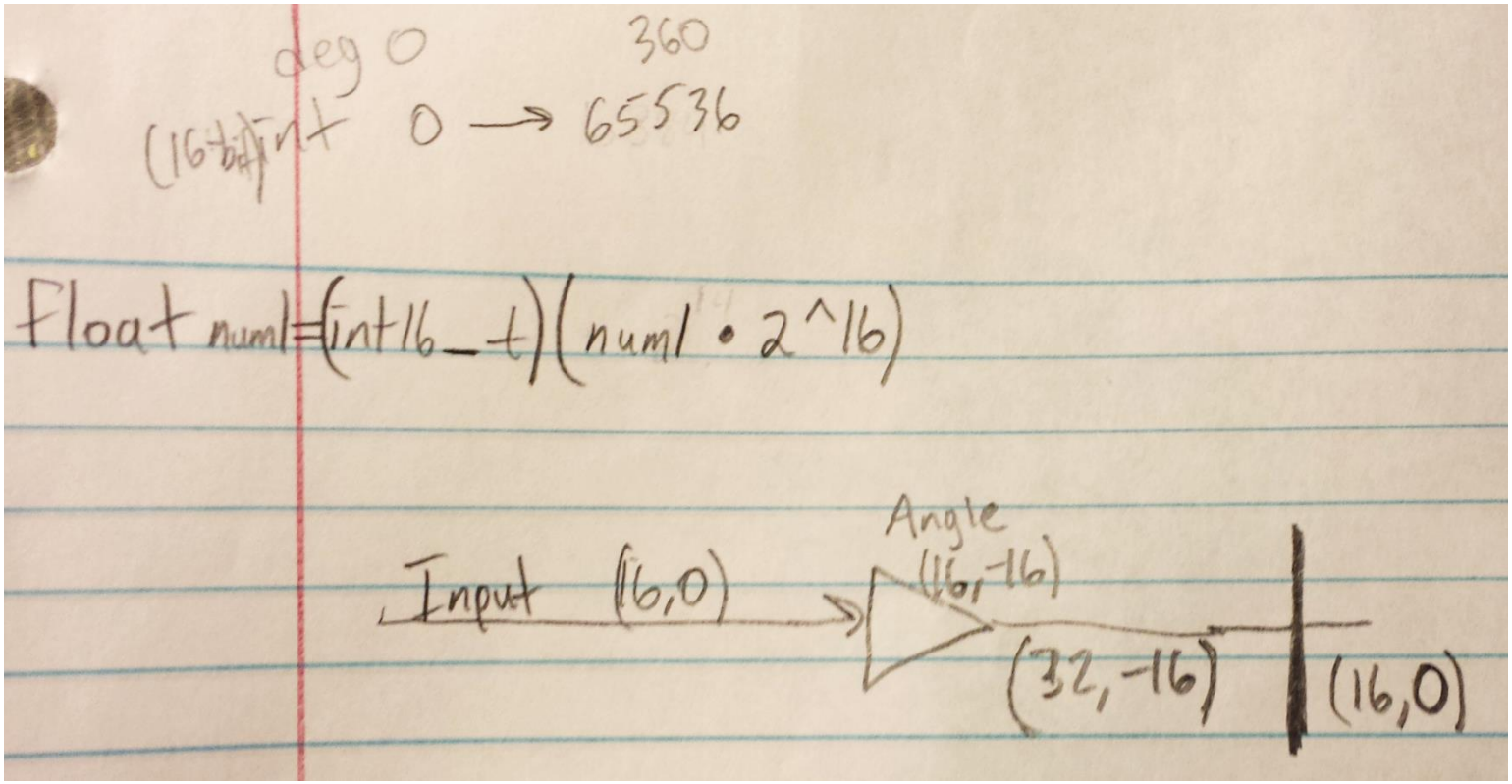
Parsed Output from Software After CRC



How to Hookup the Lidar Hardware



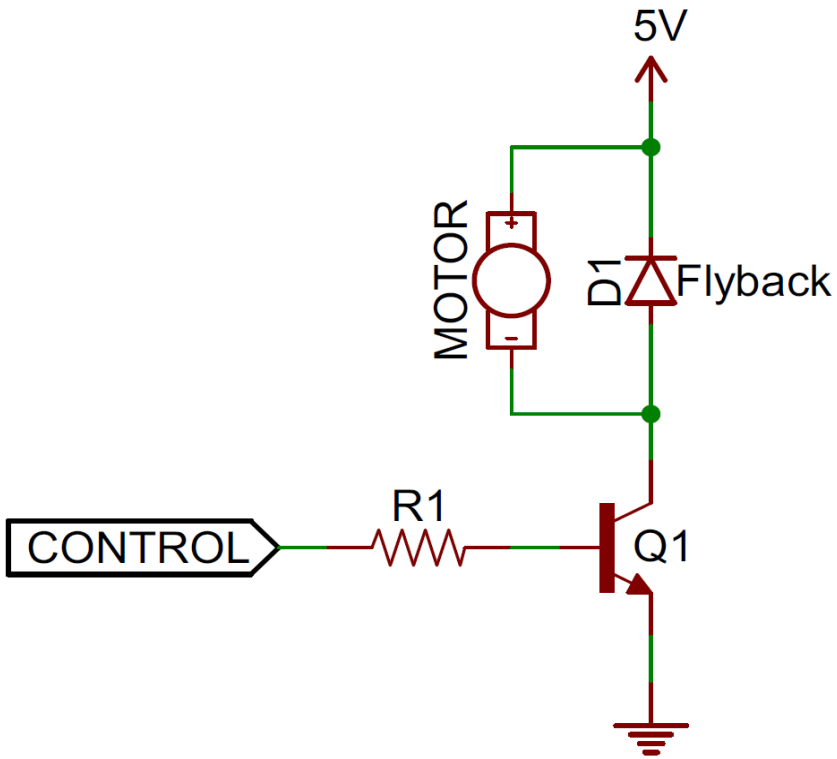
Fixed Point Math for Lookup Table



Controlling the DC Motor

- Transistor base is connected to microcontroller
  - Microcontroller sends PWM to transistor base
  - Diode prevents coils in motor from inducing a large voltage spike.

$$V = L\frac{di}{dt}$$



Site Info and Repository

https://xv11hacking.wikispaces.com/LIDAR+Sens

https://github.com/keithiscool/XV11LidarDevelopmentPIC32