FEI-ROBO: PROMETHEUS'S PARAMETERS

As requested, a description of how the parameters in the proto were derived from the datasheets.

Motor Dynamixel XH540-W270 14.8V

- Backlash = 0.25[º]
- Resolution = 4096 [pulse/rev] = 12 bits encoder * (2π)/(2^12) ≈ 0.0015 [rads]
- MaxTorque = 12.9 [N.m] [1]
- MaxVelocity = 3.87 [rad/s] [1]
- DampingConstant = 0.34 [Ns/m] [1]
- StaticFriction = 1.49 [N.m] [1]

[1] value from v-hsc_model_specification_v1.0' appendix

Accelerometer & Gyroscope (UM7)

Both sensors were acquired from the UM7, an Attitude and Heading Reference System utilized in the real robot. The sensors utilizes 8-bit integer to store data, meaning a range of 0 to 254 of returned values.

Accelerometer (8th page)

- Dynamic Range = +/- 8 [g] * 9.80665 = +/- 78.453 [m/s²]
- Lookup Table = [-78.453 0 0
  78.453 254 0]

Gyroscope (7th page)

- Dynamic Range = +/- 2000 [deg/s] * (π/180) = +/- 34.907 [rad/s]
- Lookup Table = [-34.907 0 0
  34.907 254 0]

Logitech HD Webcam C920

The camera can be set up to 1920 x 1080 pixels, although by limitations imposed the recording value is set to 640 x 480 pixels.