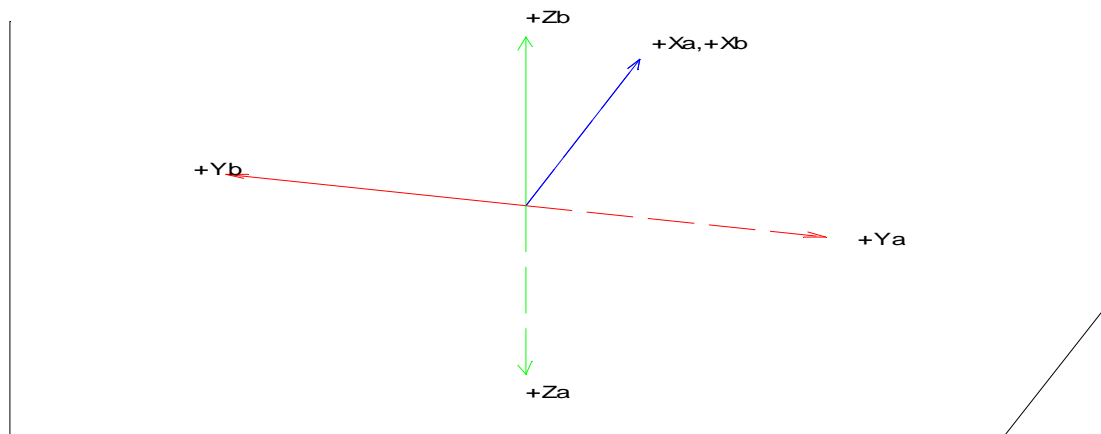This document is for showing how your results should be, approximately.

DO NOT PRINT THIS DOCUMENT.

Axes convention (A: IMU ; B: Navigation coordinate frame). The IMU measurements are expressed using convention A (as it was indicated in the lecture notes, when we discussed about attitude.). However, for the navigation we will use Convention B. So, some transformations need to be applied.(In this task, where we work in pure 2D, just doing YawA=-YawB is sufficient.)
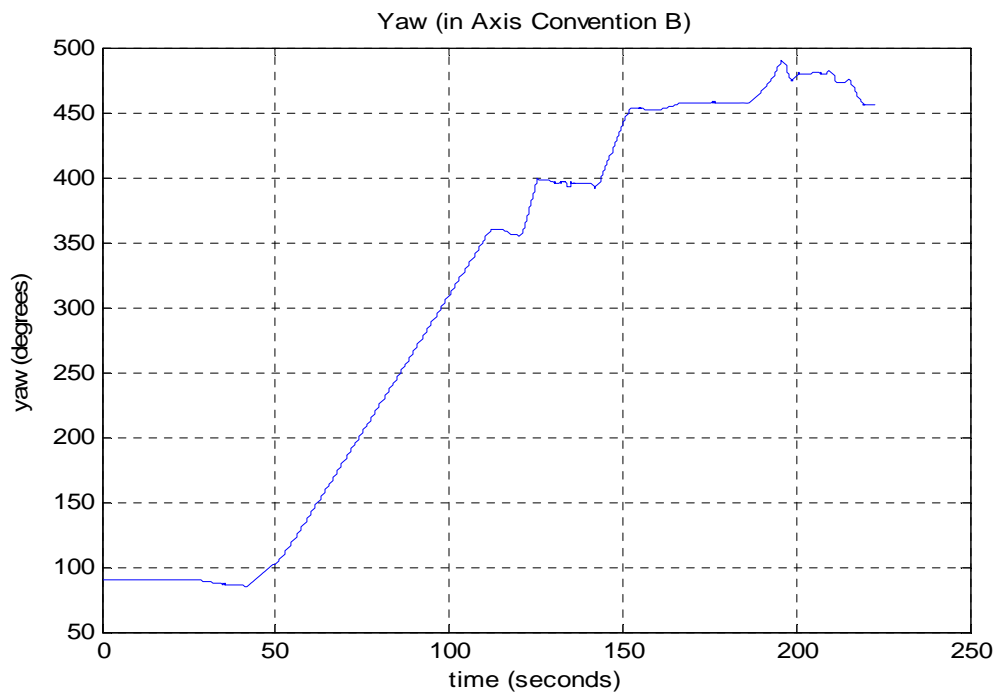

UGV started at heading 90 degrees, position (0,0). It was stationary for about 20 seconds. Started to move forward, turned to the right slightly, and then turned to left, for completing a full loop. (As you can see, this path is expressed using Axes convention B.)

At some point, changed gear, to move in reverse (where the speed measurements are < 0; see the next figure). It performed a number maneuvers (forward / reverse) for finally parking at the point "end". At that point, its heading is similar to the initial one. The starting position and final one were in fact very close, but due to the errors, the dead-reckoning process introduced some drift.
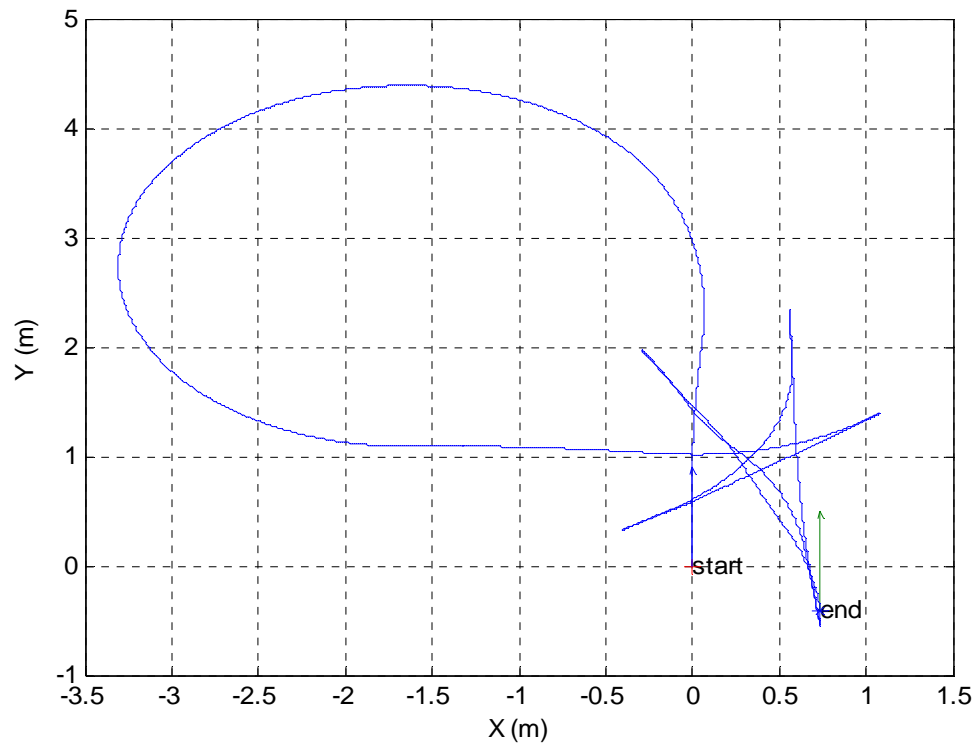
Sensors' data (speed and Angular rate)

Longitudinal Velocity

Yaw rate
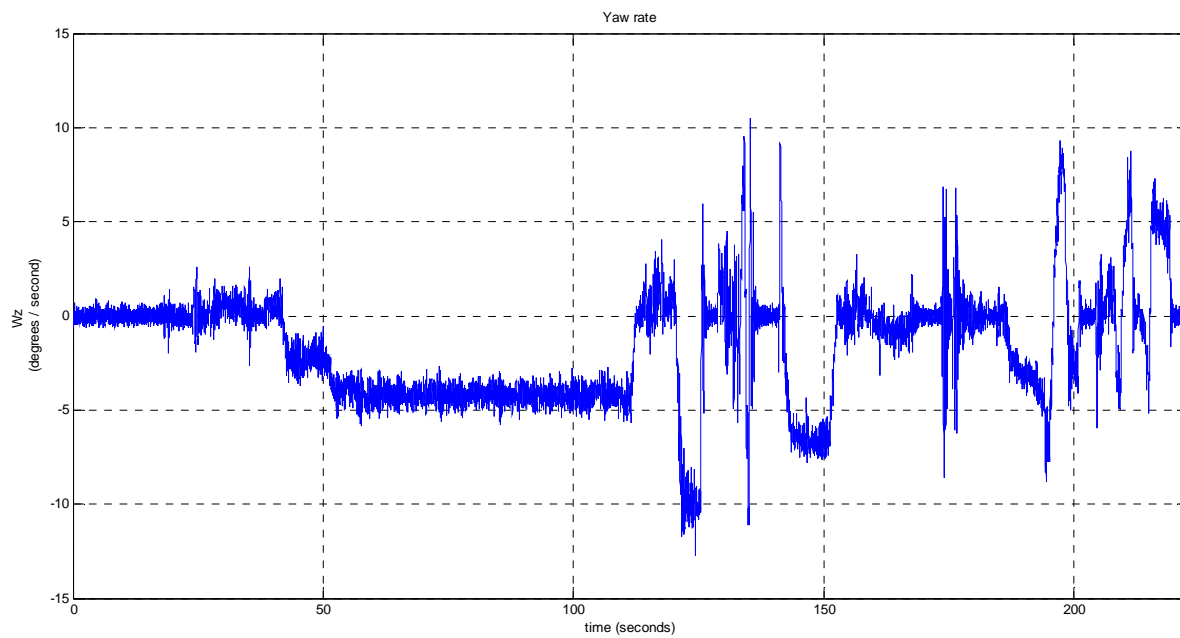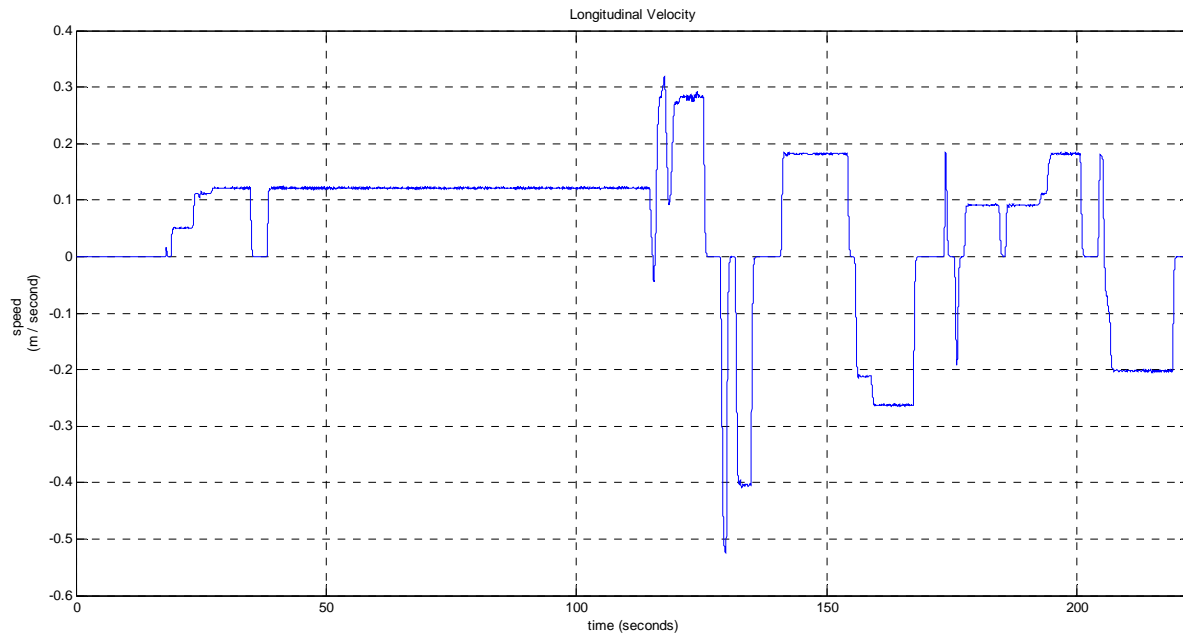
Questions: ask the lecturer. Via Moodle or email: j.guivant@unsw.edu.au