**Readme of the Codes**

The main folder contains the following subdirectories and files:

* Itreport.doc

Industrial training report prepared for UNSW

* BDI\_presentation\_Peter\_Anderson

Slides and some diagrams of the system

* WASP\_INS\_data

This folder contains WASP and inertials data collected on various days, with its own README files.

* KF.lyx and KF.pdf

This is the original write up of the KF design for the project in latex with equations etc in full detail. The implementation that most closely resembles this is mainlowrate.

* Matlab files

The key matlab files are:

INS.m – this is a function to implement and Inertial Navigation System (dead reckoning) based on IMU inputs

FK.m – Kalman Filter

mainlowrate.m – This is the main file for tracking using a filter that updates once per WASP update. It works on outdoor data, and uses errorfilter.m.

errorfilter.m – This is the main error filter based on KF.lyx and KF.pdf

main.m – This is the main entry point for the most recent filtering algorithm, which works on high speed updates at IMU frequency and uses WASPfilter.m and IMUfilter.m, which are two filters that both run at different update rates.

separation – This was used to test how well the two WASP nodes that were mounted at a fixed distance on the trolley could be independently tracked

plotmain.m, plotmainresiduals.m, plotmainresidualslowrate.m, plotmainbiases.m, plotmainerrors, plotmainuncertainty etc. are various self explanatory plots that can be called after running main or mainlowrate. Since the underlying filters have been modified a lot they might need minor changes to be made to work again.