Version 1.0 10 Mar. 2018

Milestone 2 for Project

> You will demonstrate how close you have got to reaching Milestone 2 during your laboratory session in **Week 8**. Your Milestone source code is to be committed to your group's Git repository the same day.

The second milestone you are to attempt is to achieve a reliable yaw monitor *whilst* monitoring altitude (*your group demonstrated altitude monitoring in Milestone 1*), connecting your Tiva to a helicopter mount unit * in the laboratory and operating the unit by hand. The specification is:

M2.1: Use pin change interrupts on Pins J1-03 (PB0, ch A) and J1-04 (PB1, ch B) to achieve reliable continuous monitoring of yaw (*see Lecture 18 and the Project specification*).

M2.2: Calculate the yaw in degrees, relative to the initial position which is present when the program execution starts *. Clockwise (CW) is positive, CCW is negative (viewed from above).

M2.3: Periodically and continuously sample the analogue output from the altitude sensor on Pin J1-05 (M0AIN9, PE4). Perform averaging over several consecutive samples to ensure the result is reliable. Display the result on the Orbit OLED display, *as outlined in point M1.4 of Milestone 1*. Note, *most of this requirement should have already been completed*.

M2.4: Continuously show on the Orbit OLED display the yaw in degrees (relative to the initial position) and the altitude (see M1.4) as a percentage.

> * Four helicopter mount units are provided, at least three in the Electronics Lab during scheduled lab sessions, and the remainder in the Embedded Systems Lab. **The units must not be removed from the Laboratories.** The units allow the yaw and altitude signals to be interfaced to your Tiva. The height and angle can be manually controlled. No helicopter is attached. The identities of the signal and ground connections are with the units.
>
> * The actual helicopter units have an extra signal line which provides a yaw reference; note that this reference signal is **not** present on the manually operated helicopter mount units.

----:----