Folder Description

→ BeagleBone Codes

① mb_controller.c

Contains functions to test inner & outer loop.

② mb_controller_odometry.c (# Uncomment whichever controller u want to run).

Final code containing implementation of PID, State space, Back stepping & Mode Estimation.
Model_estimation → A dead zone created in small regim around $\theta = 0$ by making $u = 0$.

③ mb_odometry.c

Contains functions for finding x, y, θ co-ordinates of balance bot from gyro & encoder readings. (No motion capture data).

④ pid.cfg

Contains gains of PID controller, Seq is as read in ② file.

⑤ ss_cnt.cfg

Contains gains of State_Space Controller, Seq is as read in ② file.

⑥ balancebot.c

This is the main code which starts all other threads & calls controller & odometry functions.

⑦ measure_motors_krushali.c

Code to record imp. parameters like voltage, current, timestamp etc of motors.

the PWM Duty cycle is generated by either reading data from chirp-hyperbolic.csv or from a sine function or as desired.