EE5332 Project Report - II

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What is the progress so far?

I integrated Bluespec FixedPoint library in order to be able to do the calculations, tested the mat_mult, made a framework to easily test the designs. Few submissions and endsems came all at once hence the progress is not a lot, but ongoing. Currently I'm also in a dilemma regarding the accuracy of fixed-point division. The matrix inverse, in particular, involves a lot of fixed-point division which may not yield accurate results to the level we want. Plan is to test the accuracy of Gaussian Elimination method, and then if it is too low, to look for alternatives.

Further plans

Bluespec

Complete the verification of the modules, make any changes if necessary, write the state machine to iterate the Kalman filter. Will mainly be handled by me along with inputs from Surya and AMS.

Baseline and Multithreaded CPP

Baseline profiling is already done, we need to profile the multithreaded implementation. Mainly being handled by AMS and Surya.

GPU

Writing an implementation of Kalman Filter in CUDA. Using nvprof to profile. Will mainly be handled by Surya and me.

HLS

To convert the baseline CPP implementation into Vivado HLS. Mainly will be handled by Surya.

NOTE: Many of us will be free from 5th May so most probably we will be able to show significant progress after that