

Project title: Kalman Based Estimation for an Engine Emission System.

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Abstract:

Engine emissions can contribute significantly to local urban or rural emissions. Due to the high internal combustion engine temperatures sensing and therefore control is very challenging. Hence, there is a requirement to estimate from the emissions profile the relative concentrations of different gases and particulates. The project has a dedicated measurement system located in the Intelligent Propulsion and Emissions Lab (IPEL). The successful candidate will be required to run typical experiments and then design a Kalman based estimator in Matlab in order to test and evaluate the estimated results.

Pre-requisites: The required skill set should consist but not limited to: Matlab/Simulink, ordinary differential equations and state-space system representations, appreciation of control and some background on engine emissions. Fundamental understanding of the Kalman filter will be beneficial.