

IKU ECU

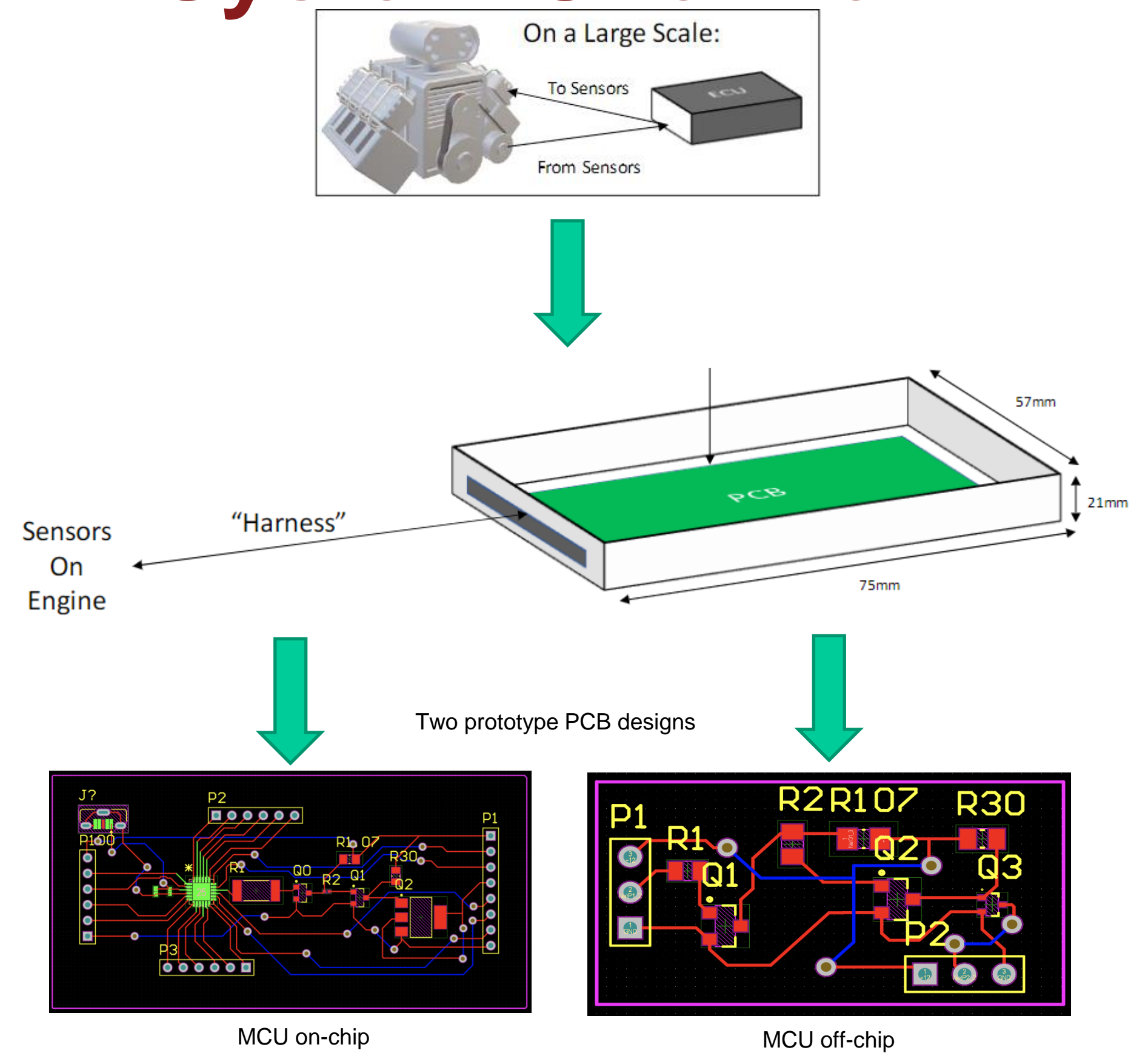
Yongjie Yang, Jack Walter, Xueting Qian, Takuya Seaver
Faculty Advisor: Prof. Qiangfei Xia



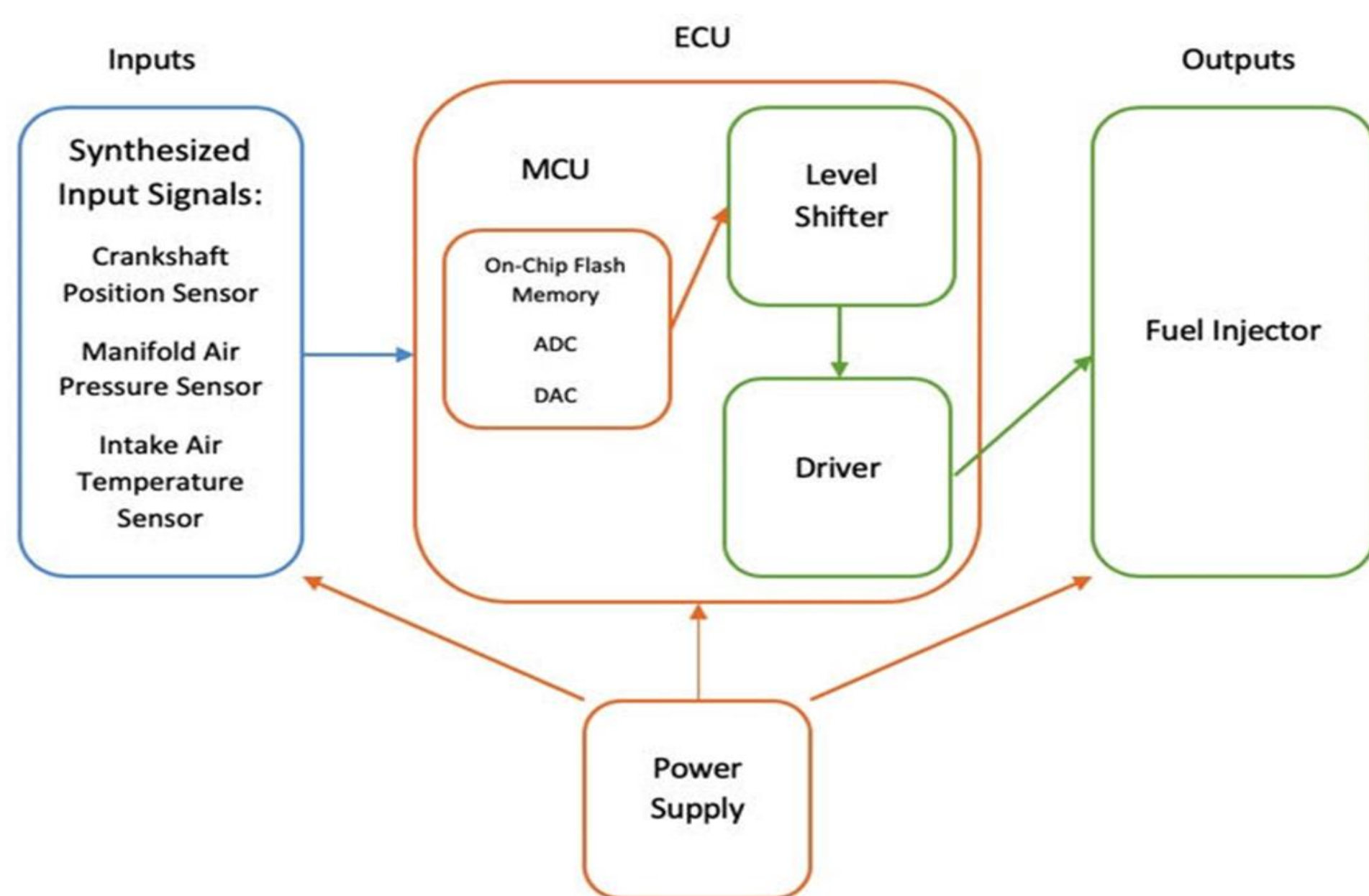
Abstract

IKU ECU allows for the UMass Super Mileage Vehicle Team (SMV) to tune their vehicle for optimal fuel efficiency. A compact design, this electronic control unit can be tuned according to the user's requirements. Our system works by allowing for full customization and is well suited for the SMV team's use case. Our ECU hopes to bring the best fuel efficiency while being the most customizable.

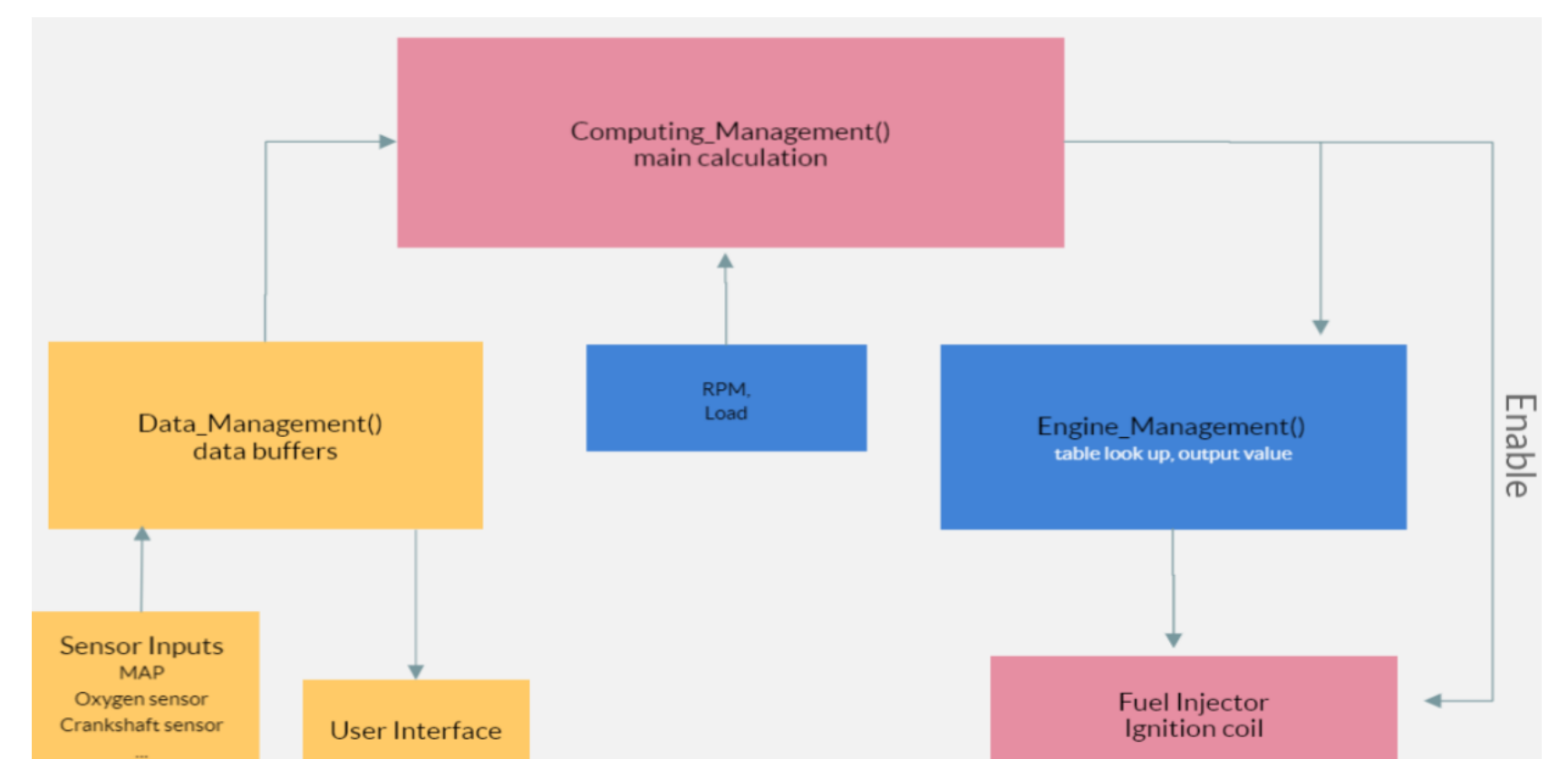
System Overview



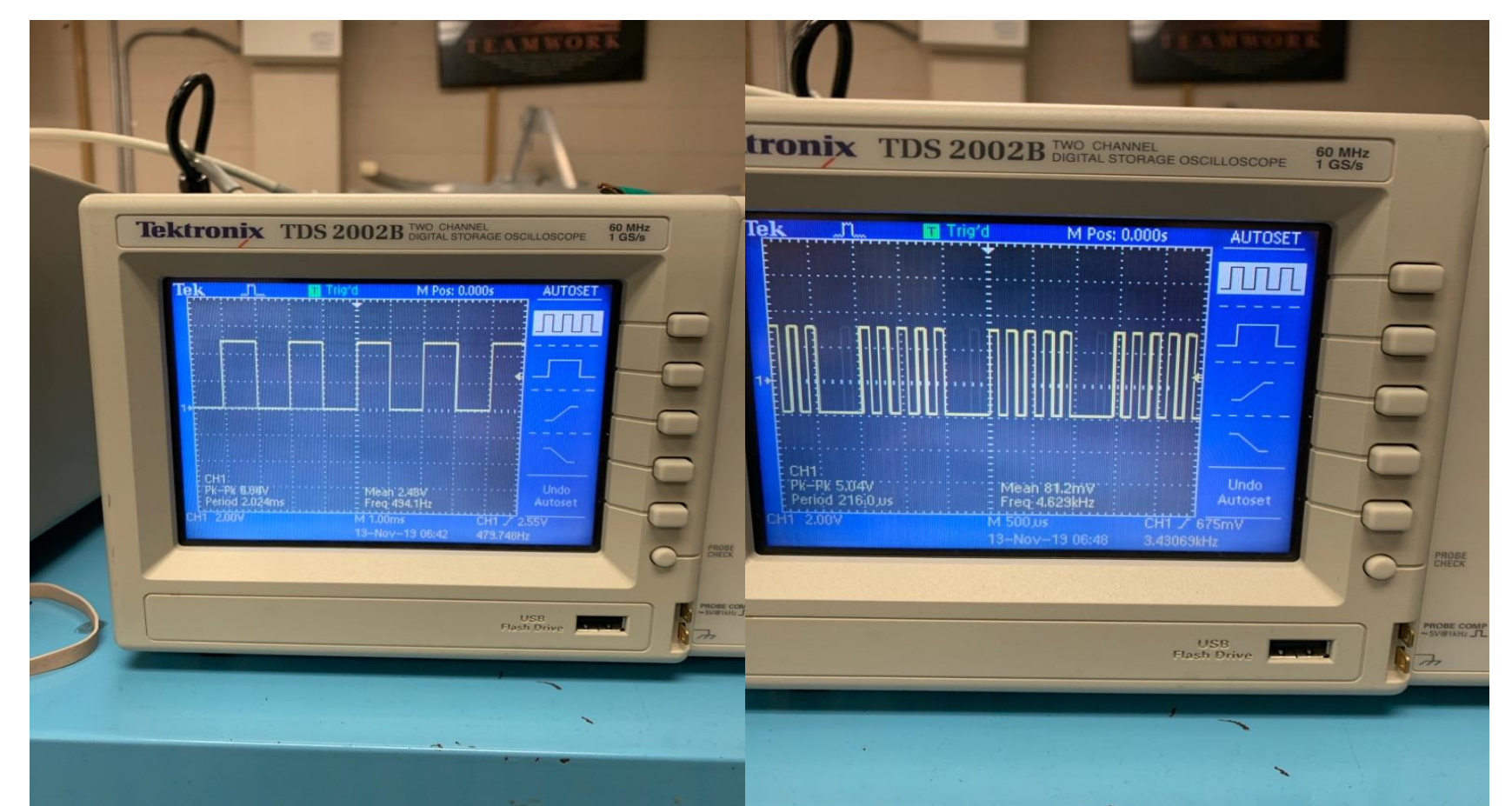
Block Diagram



Software Overview



Results



Pulse width changing due to changing sensors

Specifications

- Support up to 6000 RPM
- Longest pulse modulated signal of 10ms
- Read inputs from the required sensors
- 12 V fuel injector

Acknowledgements

We would like to thank our advisor, Prof. Xia for sharing his time and ideas with us over the past few months. We would also like to thank our evaluators, Prof. Gong and Prof. Hollot for the constructive feedback that we received on all aspects of our project.