DAMIAN PACYNKO

PROJECTS

University of Toronto Supermileage Design Team - Urban Concept

- The urban concept team is concerned in the design of U of T's very first hydrogen-powered vehicle.
- The team plans on competing in the Shell Eco-marathon next year.

- I am the Electrical Division Lead at UTSM-UC. I oversee three sub-teams, namely Powertrain, Systems, and Telemetry. Most of my technical work has been with Telemetry. The objective of this sub-team is to develop a system that collects data from sensors all around the car while on the track, and then transmits this data to another computer at base camp.
- A substantial amount of time was reserved for planning the system, as we wanted to be as cautious as possible when designing the architecture to ensure all of our requirements will be met.
- We decided to design a custom STM32-based On-Board Computer. This pathway gave us the most flexibility, and also provided an opportunity for members to learn board design. We're in the process of creating the schematic for the system, and we will soon begin designing the PCB using Altium.

FPGAcademy Tutorials

FPGAcademy

- FPGAcademy.org is an educational resource that features Intel FPGA boards. There are various tutorials one can follow on how to use their FPGA boards and software programs. They also have course-like lab exercises on their page.
- I am hoping to create tutorial-like pages to guide people interested in these labs. This would include instructions on how to setup the board, as well as a link to my solutions to the labs.
- So far, I have started with the Embedded Systems module that runs a Linux image on the ARM Cortex-A9. The module teaches: how to develop kernel and user-level code, memory-mapped I/O and virtual memory, and how to interact with various I/O devices.
- My tutorial page can be found at this Notion page.