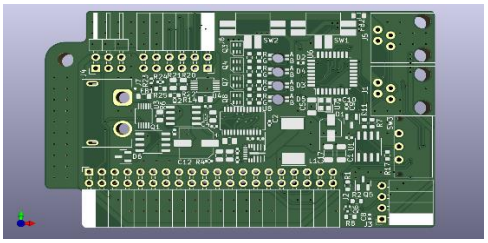
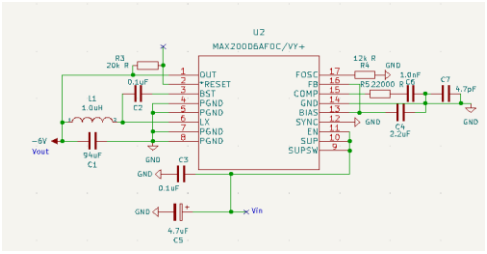
Sebastien Terrade - Collection of Projects

Jetson Nano Interface Board

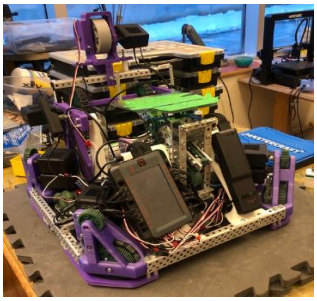
What?
Designed a **PCB** for a Jetson Nano Interface Board used to provide heavy computation for tasks such as machine vision for the Queen's University VEX U Team Robots





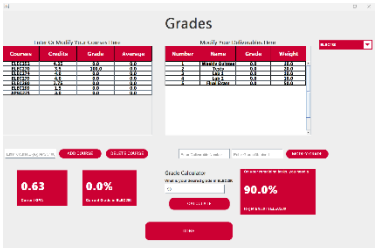
How?
-Analyzed Datasheets to find compatible components for board
-Used **KiCAD** to create schematics for the Step-down buck converter, RGB LEDs and Power path selector

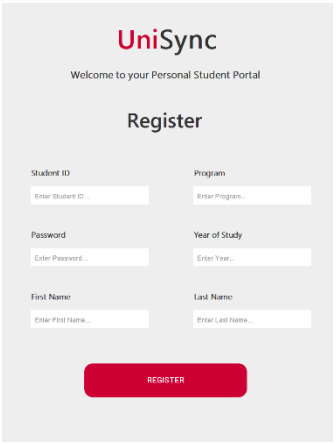
Results
-Successfully completed and integrated the PCB with Jetson Nano Board
-Placed top 16 in the international VEX U competition



UniSync

What?
Created a program to increase the productivity of university students. UniSync's features include a to-do list, a grade adder and calculator, a student dashboard as well as a performance tracker.

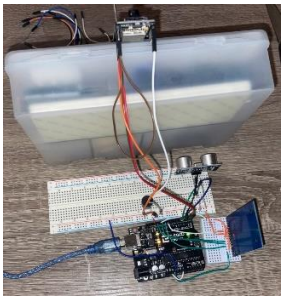




How?
-Used Java and MySQL for the app's functionality and the **backend**
-Created the GUI pages using **JFrame** for the **frontend**

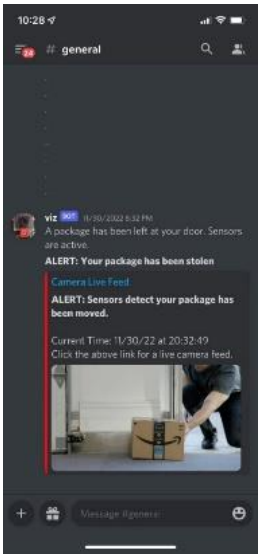
Results
-Created an application that students can use to manage their courses and increase their performance in university
-Program is used by myself and a few other computer engineering students

Package Security System



What?
Created a comprehensive package delivery security system to prevent package theft.

How?
- Incorporated a fob activation system and precision distance sensor for pinpoint package location and secure access with **Arduino**
- Implemented a **Python**-based user notification system via a discord moderator, providing real-time package status updates and granting access to a live

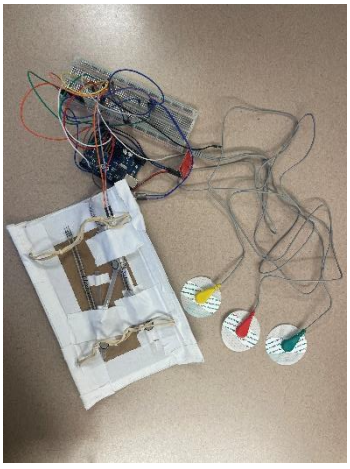


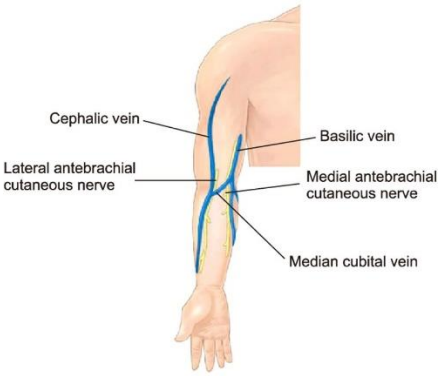
Results
-Successfully created a cheaper/simple alternative to a high-end package security system.

IV CatheterSim

What?
Designed an IV task trainer that is portable, cost-effective, and provides feedback on user performance for the Queen's Next Generation Medical Simulation Hackathon.

How?
The prototype contains sensors that indicate to the user which vein they have inserted the IV into and whether or not they have administered the correct anesthesia dosage. The GUI also has a calculator function to determine the amount of anesthetic required based on the anesthesia used and the patient's body weight.





Results
Placed third overall and won a grand prize of 1500$.