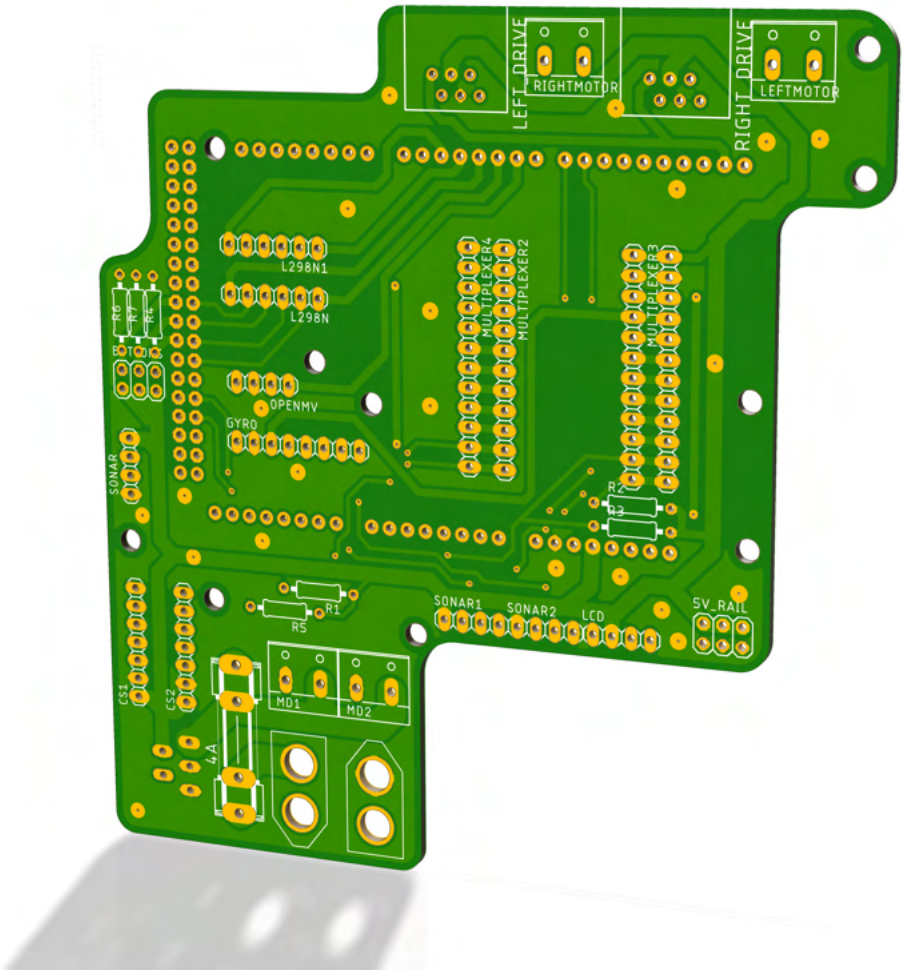
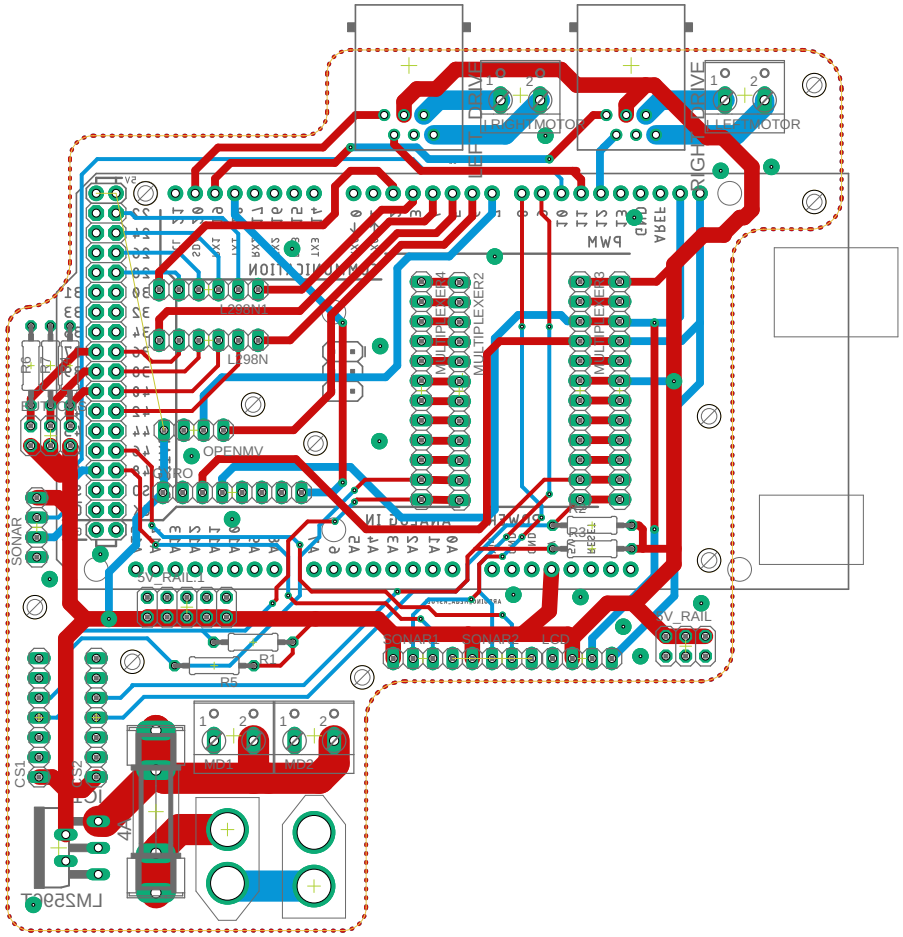




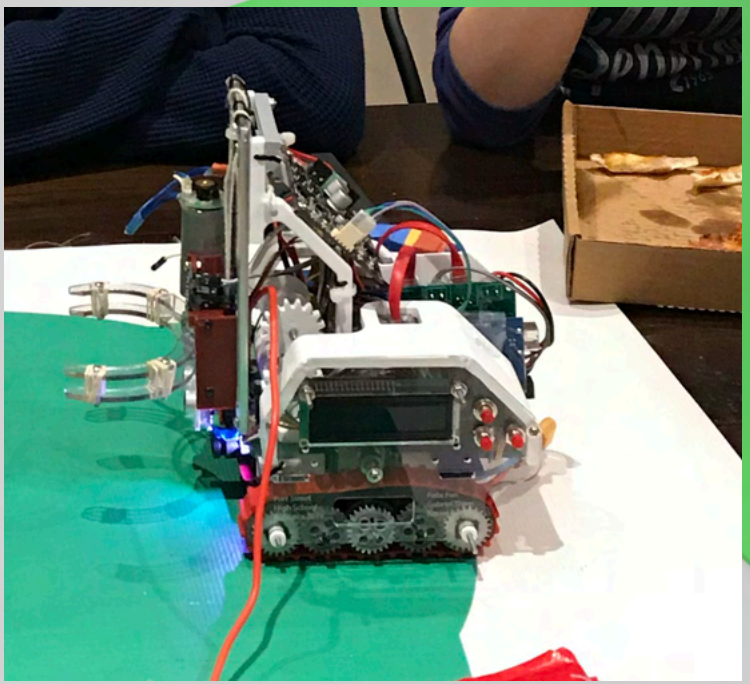
PCB Design for competitive autonomous robot (2019 National & International RoboCup)

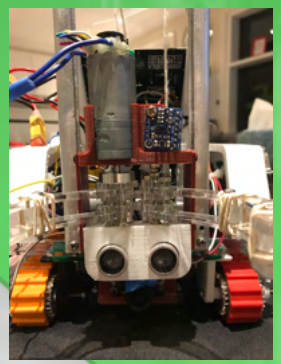
- Designed in Autodesk Eagle, manufactured by PCBWay
- Quad-stacked PCBs consisting of Arduino Mega, Motor Shield, Multiplexer and main PCB
- Handles I2C protocol for sensor communication, pin passthrough
- Handles high voltage power lines, battery power and voltage step-down

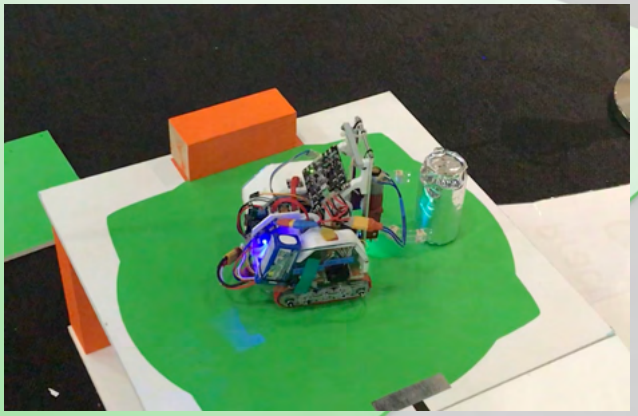
Dean's Award for Engineering - Best Robot Design

Competitive autonomous rescue vehicle (2019 Iteration)

- Custom designed static & dynamic mechanical components
- Custom designed PCB for electronics
- Features suite of embedded sensors within chassis components such as ultrasonic, time of flight (IR), OpenMV Camera, colour sensors (under), managed by I2C multiplexer
- LCD & buttons for UI, and program selection
- 3D printing, laser cut acrylic, machined aluminium, soldering, electronics assembly and workshop tooling
- Involved mechanical prototyping, electrical debugging and software testing
- High focus on communication with team to build a product, presentation skills to interviewers, judges and industry representatives

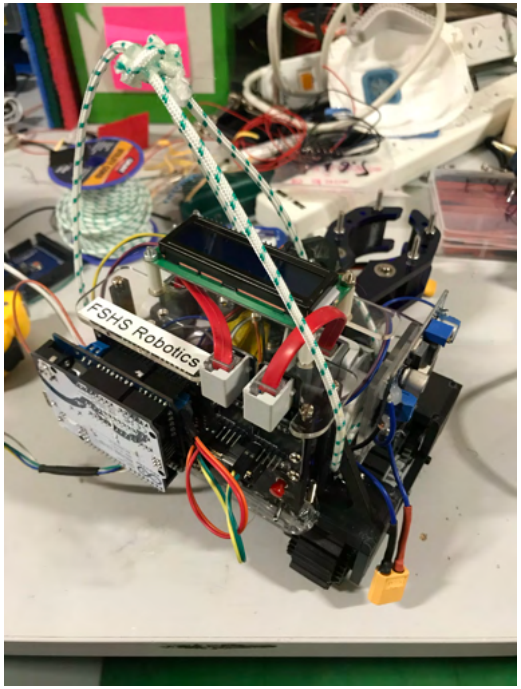


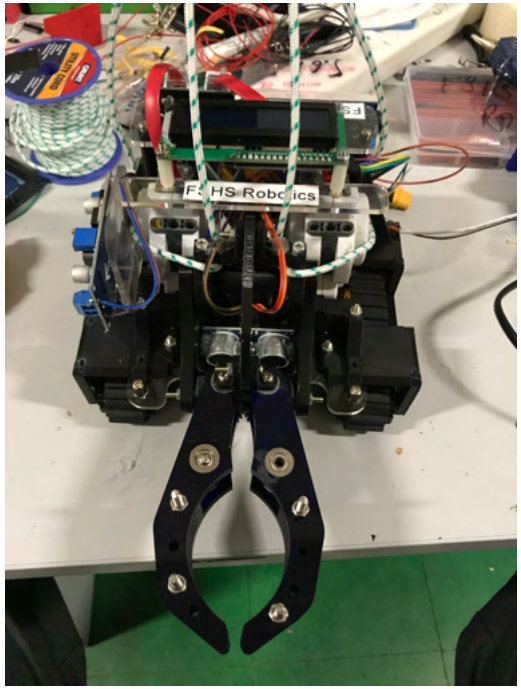




Find & move object to designated zone inside a field

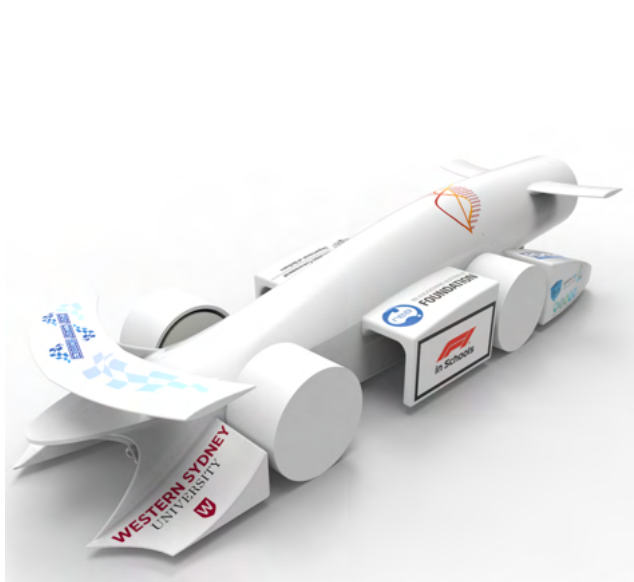
- OpenMV camera
- Ultrasonic Sensor
- Time of Flight IR Sensor





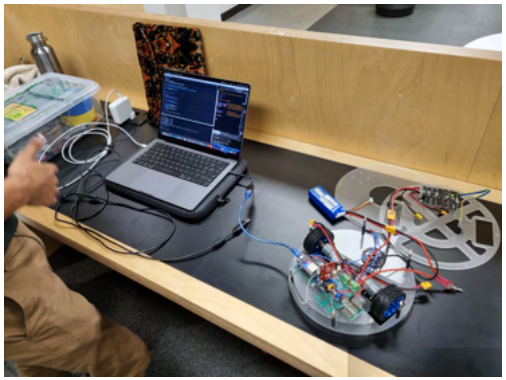
Competitive autonomous vehicle (2018 prototype)

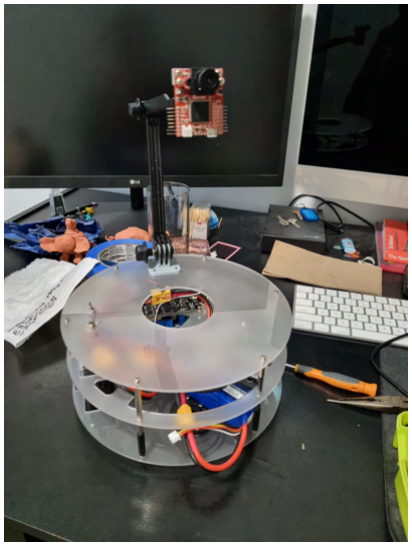
- Lots of mechanical prototyping, electronics assembly debugging and experimenting, software testing



F1 in Schools - CNC machining, assembly & finishing

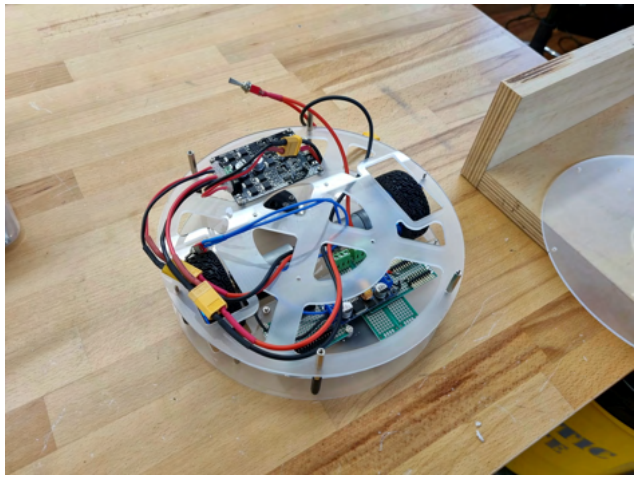
- Collaboration & liaison with sponsors, discussing revisions and prototypes
- Reporting on technical progress through team meetings
- Heavy focus on initiative, communication and teamwork, self-learning
- Design iteration, research and prototyping phases, documentation of our work
- Designer of F1 car in CAD, surface/organic & wireframe modelling
- CNC machining, 3D printing and laser cutting, hand finishing & assembly





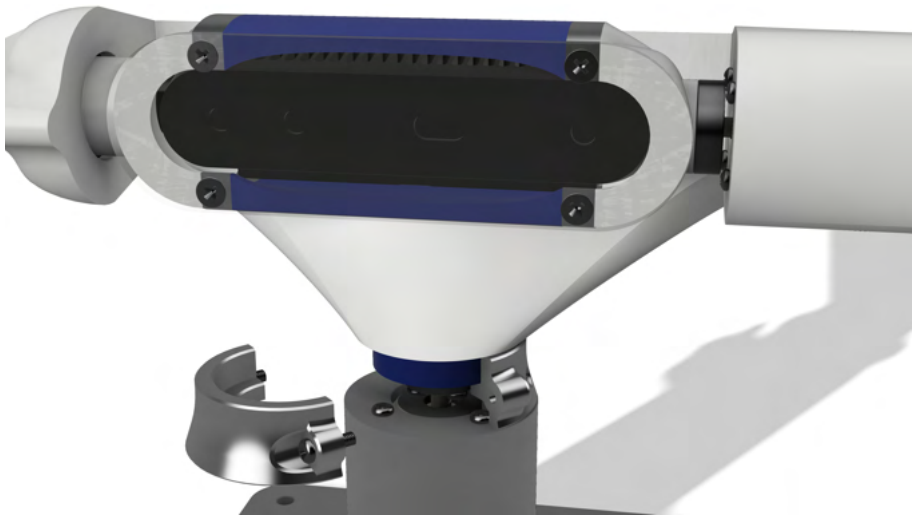
Droid Racing Challenge (2022)

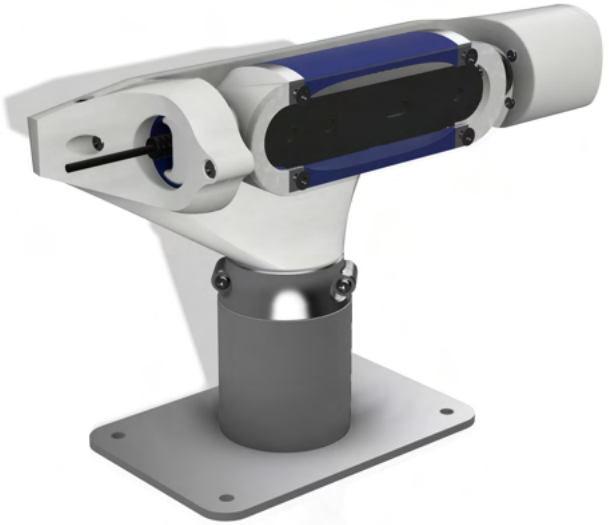
- Re-entry into competitive robots
- Timed navigation around a track using computer vision based decision making
- Integrating the electronics, software and basic hardware chassis
- Debugging logic level conversion between serial communication between 3.3v and 5v
- Micro-controller operated as slave for the commands that camera module sent
- Bang bang algorithm
- Camera was trained to maintain its vision within a course.



Australian Rover Challenge (2021)

- Development of a motorised camera housing solution for a rover development challenge
- Uses stepper motors inside body of mount for precise movement
- Can pan 360 horizontally, 360 rotation vertically
- Mount designed for clear rover body unobstructed view, primarily facing downwards and inspecting ground objects
- Designed for Intel D450 camera
- Designed to be plastic injection moulded, machined and laser cut



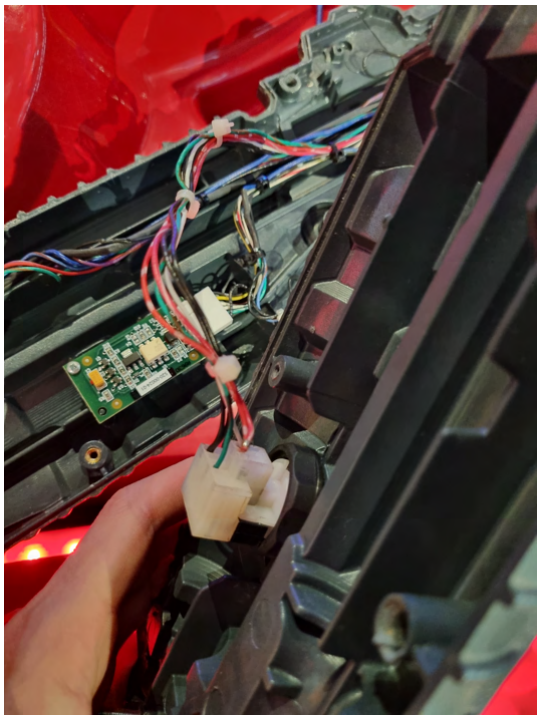


Technician work at Archie Brothers (2022)

- Fault diagnosis of machines and IT systems
- Ordering parts, disassembly, repair and maintenance
- Involved debugging electronics to find where in the system, the machine has faults, probing voltages and current, diode tests, resistance and power supply replacements
- Most machines have simple legacy systems, electronics and mechanics still very easily had problems
- Newer machines ran on pcs and controllers
- Arcades are a scam, they trick so many customers

Dodgy IR emitter setup in shooting game

Testing & Trigger switch replacement



Bits & pieces from hobbies

- SMD soldering job, replacing keyboard USB-C port with heat guns, desoldering irons, flux, solder paste
- Building custom mechanical keyboards, modifying sound and feel with foam, applying lubricant to mechanical switches
- Pictures from most recent completed customer-commissioned custom PC build (October)
- Puffed up LiPo battery replacement from portable speaker