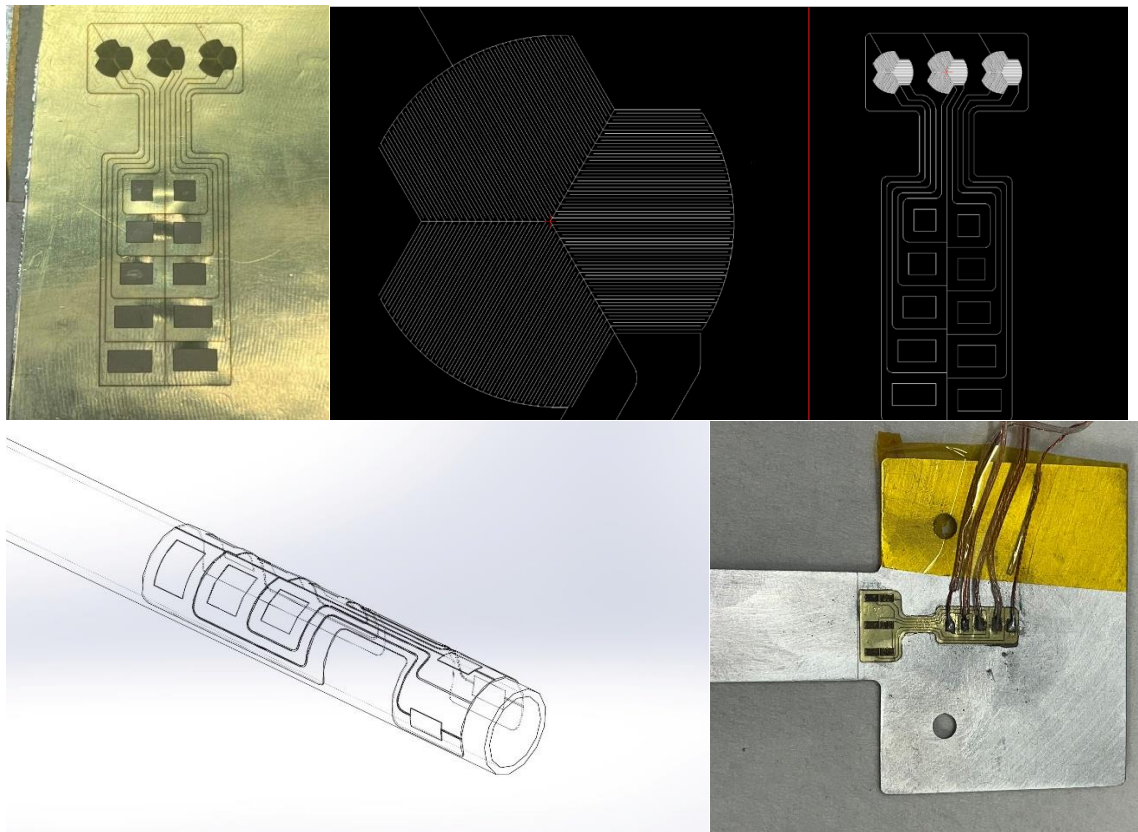


PORTFOLIO OF WORK

Endoscopic Seath Force Sensor

For real-time force-feedback and safety systems.

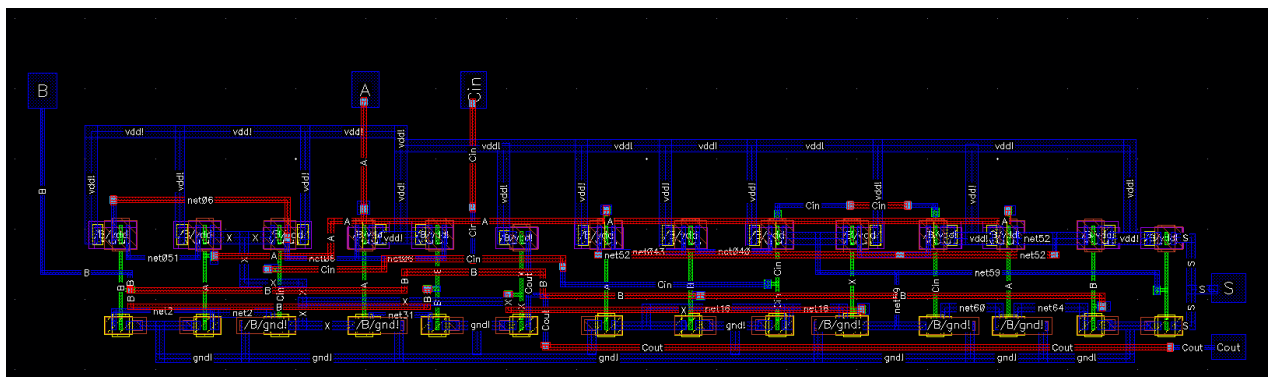
University of Waterloo & Forcen, inc.



CMOS 1-bit Full Adder IC Layout

Course Project

Designed in 45-nm technology with Cadence Virtuoso



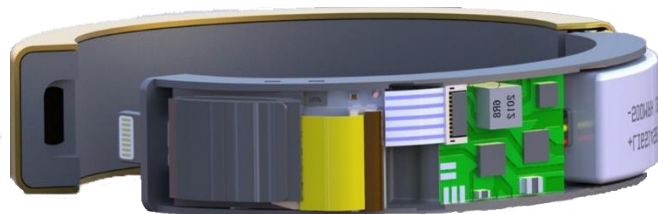
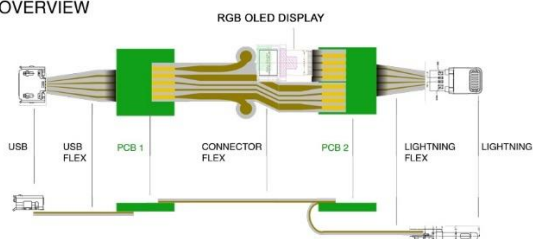
Automated Testing Devices for Construction-Site Monitoring Sensors *Brickeye, inc.*
 Robust design for rapid testing of high volumes of environment-monitoring sensors.



Wearable Portable Charger Smart Band *Personal Project*
 UW Concept 5K pitch participant: solving battery-life and fitness tracking in one wearable device.



OVERVIEW



Integrated Joint-Torque and End-Effector Force-Sensing Robot Arm

Forcen, inc.

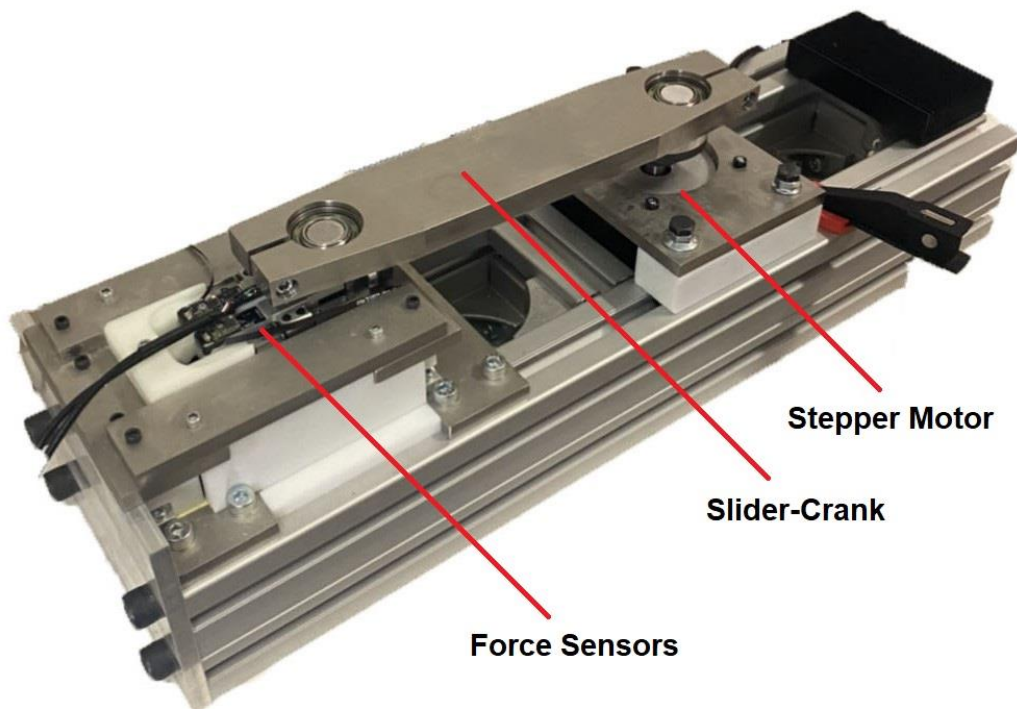
Planar 3-DOF arm for real-time force-feedback controlled actuation and calibration.



Extended Lifecycle Automated Force Sensor Testing Fixture

Forcen, inc.

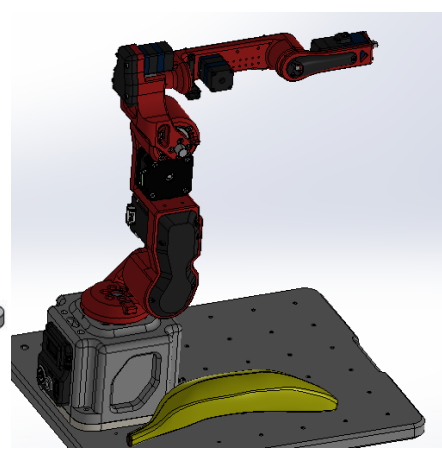
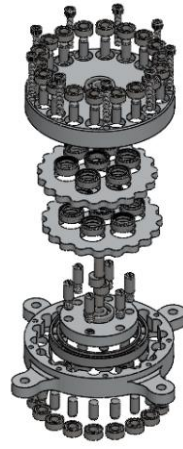
Cyclic 1-DOF bi-directional force loading for over 1 million cycles.



6DOF Custom Desktop Robot Arm

Personal Project

Custom cycloidal drive, closed-loop FOC stepper motor drivers, STM32, OpenRTOS over CAN.



3D Printed Composite Aerodynamic Vehicles

Personal Project

3D-printed quasi-spaceframe chassis utilizing carbon fiber tubing. CFD and FEA optimized.



Wing



Medical Screening Devices Product Design

Sterasure, inc.

Integration of mm-wave radar-based contactless vital sign monitoring, SPO2 finger clip, and IR-based contactless SPO2 diagnostic tool for triaging applications.

