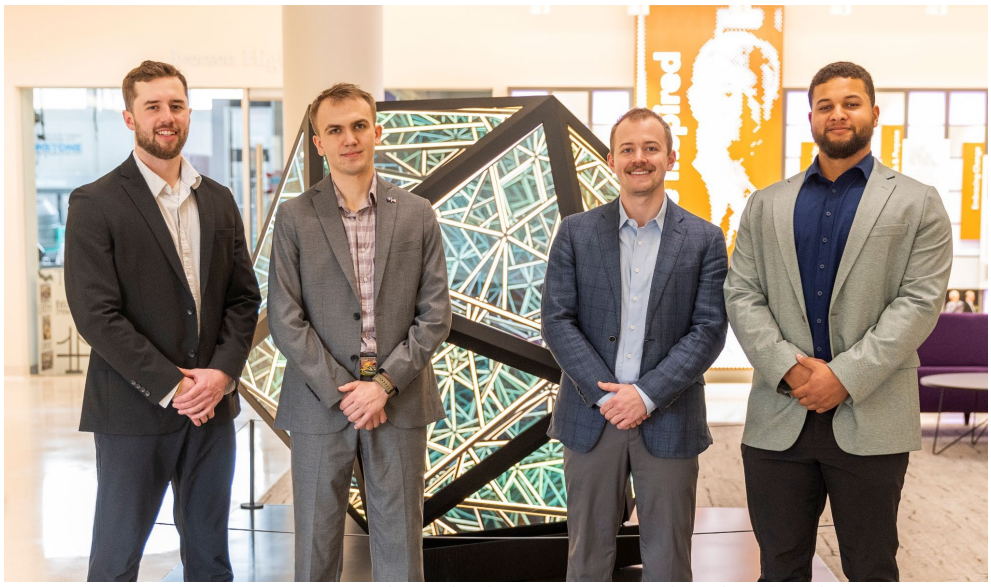
Archimedes



From left to right: Connor Niznick, Malcolm Hermans, Jake Blanchard, and Nate Gaus.

SprocketWorx, Inc

TEAM 7

INDUSTRY REPRESENTATIVE
Mitch Koenig

FACULTY ADVISOR
Hassan Salamy

PROJECT SUMMARY:

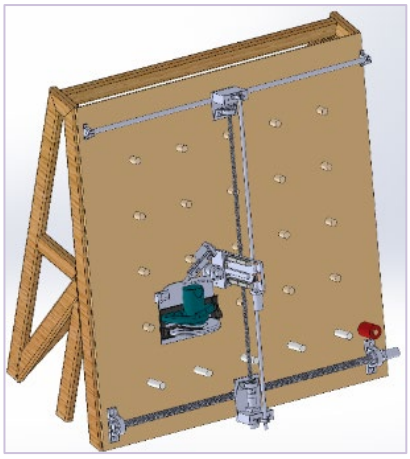
SprocketWorx seeks to advance the construction market with innovations in processing cement fiber boards for installation on large-scale commercial projects. The design is centered around user safety and mobility. Workers are frequently exposed to large amounts of silica dust, a known carcinogen, and this system effectively removes the operating technician during material processing. The design features a dust-collect capture system, a platform to rotate the saw, a linear translation system to make biaxial cuts and a touchscreen interface microcontroller. SprocketWorx will use our design as a stepping point for future work to automate the installation of cement fiber boards in industry.

DESIGN GOAL:

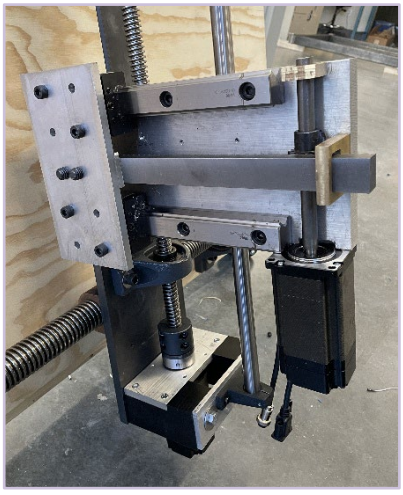
The primary goal is to design and manufacture a scaled prototype and provide additional guidance to produce a full-scale model. The prototype will be a proof of concept for the project's overall efficacy.

DESIGN CONSTRAINTS:

- **Capture 90% of the particle dust created via shrouds and vacuums**
- **Rotate saw orientation 90 degrees with +/- 1 degree of each axis**
- **Process sample board within 30 seconds**
- **Cut panel dimensions within +/- 1/8 inch**



Left: SolidWorks rendering of our scaled automated cutting machine designed for mobility on and off the jobsite



Right: Assembled z-axis travel platform which enables controlled vertical motion of the cutting tool