

# Red Hot Routers

Terry Glynn, Samuel Navarro, Spencer Bullock, Azeem Q

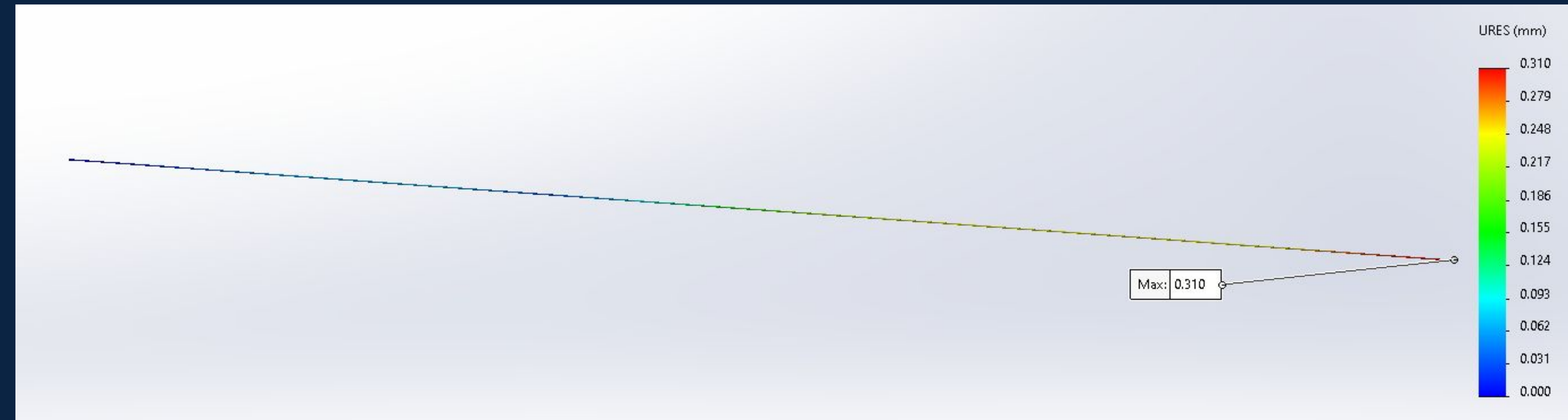
## Key Features:

1. Adjustable hot wire temperature for various foam densities
2. Automated CNC Process
3. Able to make cuts as large as 2 feet

## Summary

Our goal is to design a way for the UCI FSAE team to efficiently and effectively manufacture their wings/airfoils. We are going to use a CNC (Computer Numerically Controlled) hot wire machine in order to do this. This approach will be cost effective, time efficient and accurate.

## Engineering Analysis



- Max Wire Displacement = 0.310 mm

## Final Design

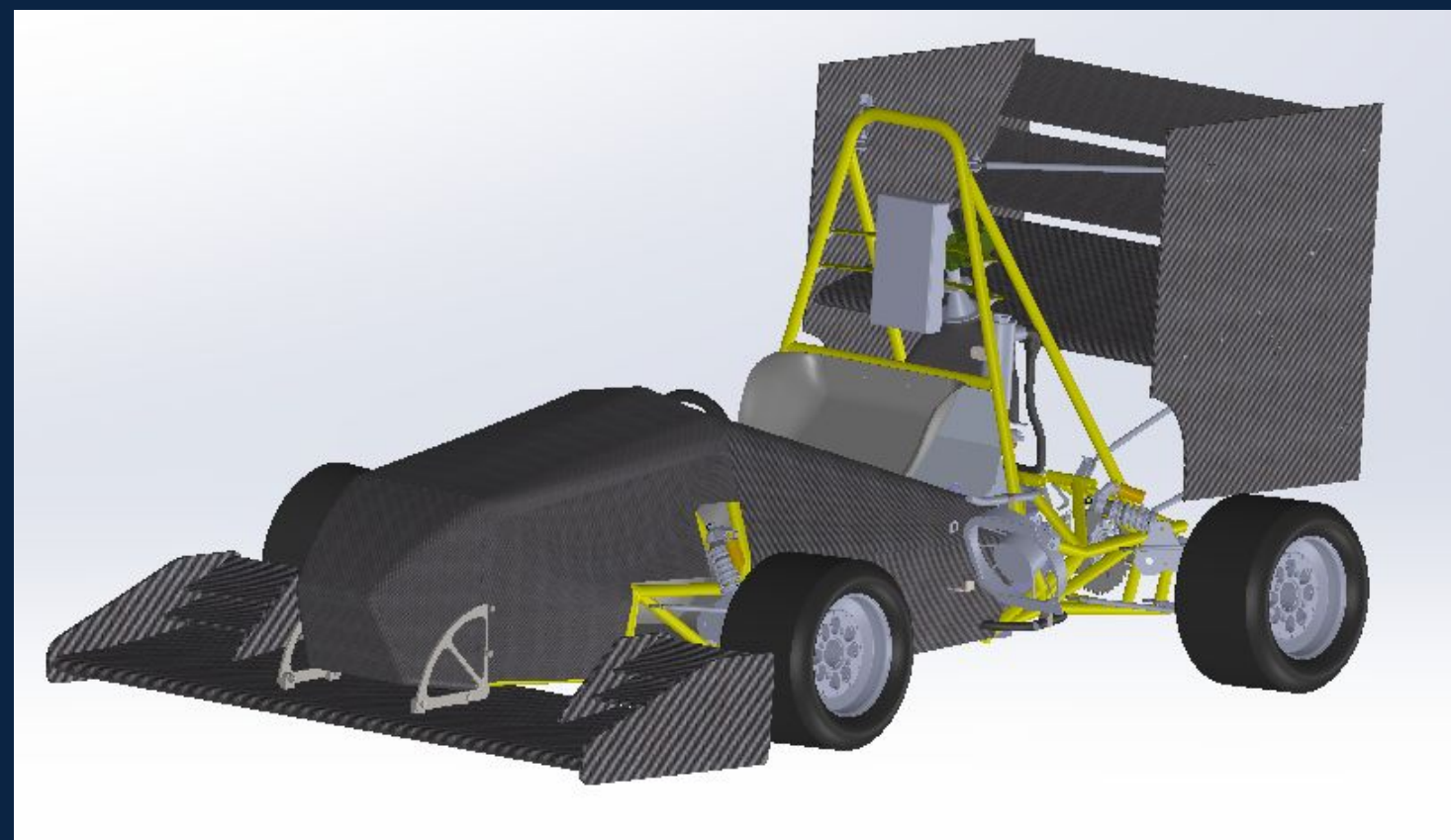
- 2ft wide, 1.5 feet tall.
- Stepper motors & Lead screw to move wire.
- Power Source - 12v DC adjustable power supply.
- Holding wire in Tension- Clamp, rail and set screw.
- Wire Diameter - 0.025in.

## Design



## Recommended Future Improvements

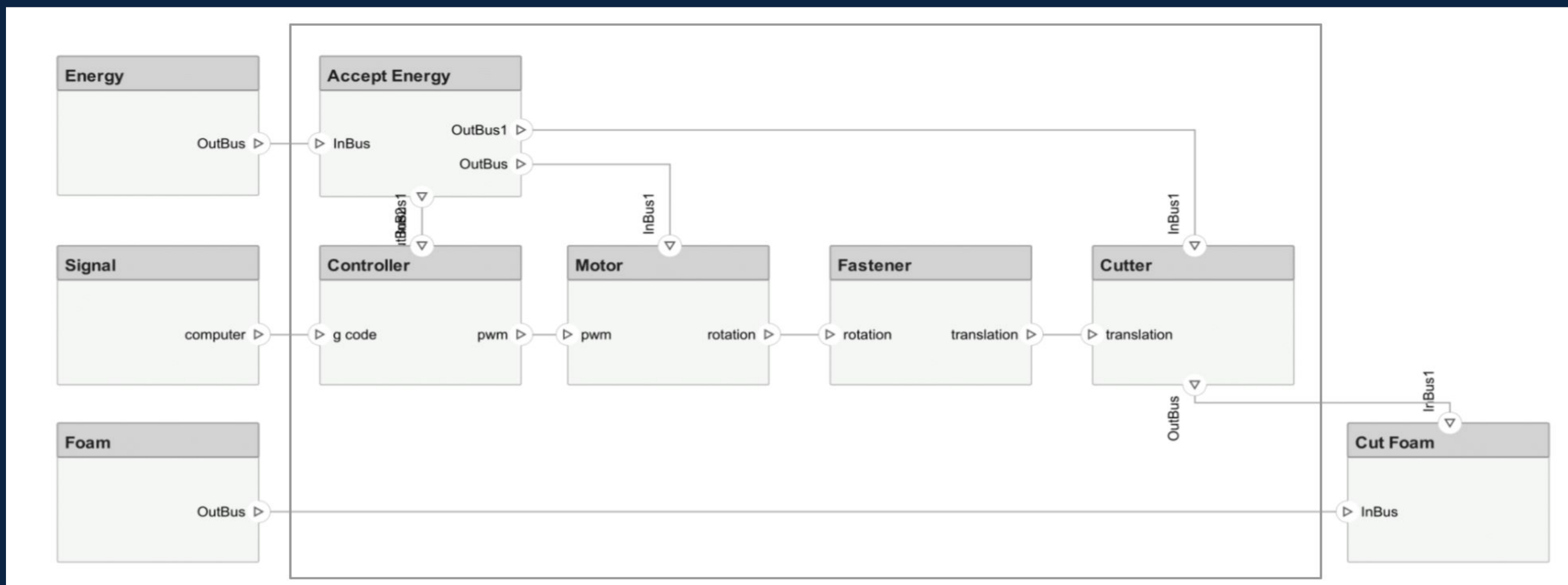
1. Auto Tensioning System
2. Enclosure and vent fan for toxic fumes
3. Auto shut off feature if failure is detected



## References & Acknowledgments:

Terry Glynn <sup>a</sup>, Nicholas Choi <sup>a</sup>, Samuel Navarro <sup>a</sup>, Spencer Bullock <sup>a</sup>, Azeem Q <sup>a</sup>

<sup>a</sup> Department of Mechanical Engineering  
University of California, Irvine



## Hardware Schematic

