Design of Continuous UHPFRC Mixing Machine
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**Background**

- DCS was tasked with designing and prototyping a first-to-market continuous ultra-high performance fiber reinforced concrete (UHPFRC) mixing and discharging machine

**Objectives**

- Design and prototype a mobile continuous UHPFRC mixer
- Output: 10-50 cubic yards of UHPFRC per hour
- The UHPFRC mixer needs to be cleanable
- The UHPFRC needs to be serviceable

**System Diagram**

**Prototype**

**Conclusions**

- Our team was able to achieve functionality of our UHPFRC mixer.
- High shear heads properly sheared material that flowed through, but created significant resistance to flow resulting in a decreased overall volumetric flow rate.
- Recommended future work:
  - More thorough and time intensive testing of different high shear head designs to achieve an increased output flow rate.
  - Development of a complex fiber addition mechanism for a fully automated process.
  - Increase robustness of liquids addition process.

**Subsection Detailed Views**

- Low shear chamber
- High shear chamber
- Fiber addition chamber
- Liquids addition

Questions? Email Joel.Bay@utdallas.edu for more information

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