**EWU IEEE Industrial Sorter Project**

Project Goals:

**System Design**

* Practice designing and documenting a complex system
* Make a modular system that supports division of labor and future changes

**Industrial controls**

* Implement machine with distributed controls – coincides with remote learning
* Ability to scale controls to PLC, HMI, CAN (TM4C), etc.
* Power control and safety circuits

**Motor Control**

* Build software drivers and hardware for brushed motors and steppers
* Learn motor theory, power transistors, positional control

**Sensors, Image Processing and Communications**

* Develop familiarity with I2C protocol (industry standard)
* Manage and interpret sensor data
* Scale towards Machine Vision system (Image processing in R&D stages, camera will also use I2C)
* Image processing may apply Machine Learning in future versions

**Microcontrollers/Embedded Systems**

* Register-level coding on ARM microcontroller
* Real time operations and fault handling

**Tasks:**

* Camera R&D – Matt Sheldon
* Motor Control (Steppers) - Jaidon, Wilson
* Agitator Motor – Nhat
* I2C Color Sensor – Amy Swanson, Cody Birkland
* Controls Design and Planning – Cody Birkland
* Mechanical Design – Cody Birkland
* Power System Design
* Safety Circuits and Controls