**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**

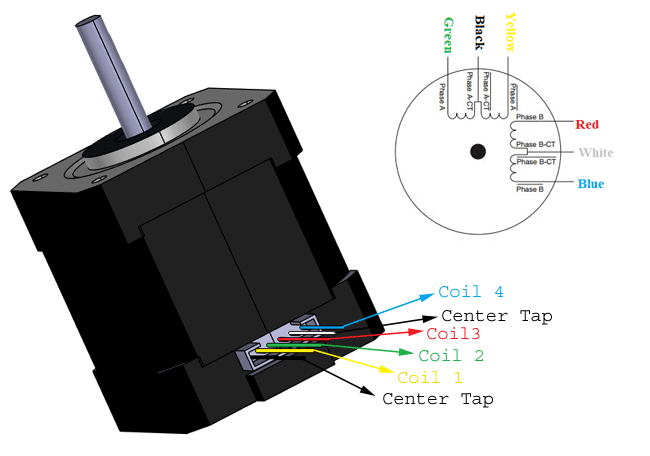
* Register-level coding on ARM microcontroller
* Real time operations and fault handling

**Teams:**

**Motion Control Team: Jaidon, Wilson, Nhat**

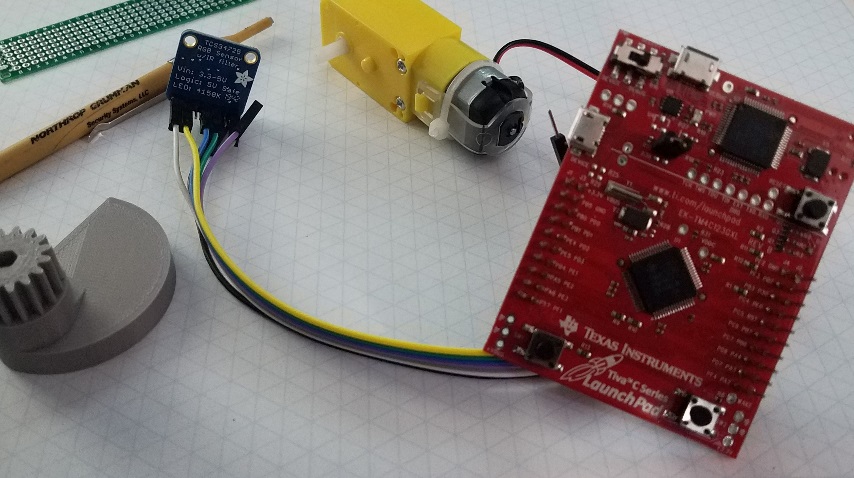
Team Lead: Jaidon

* Motor Control (Steppers) - Jaidon, Wilson



* Agitator Motor – Nhat

**Sensor Team: Matt, Amy, Cody, Wilson**



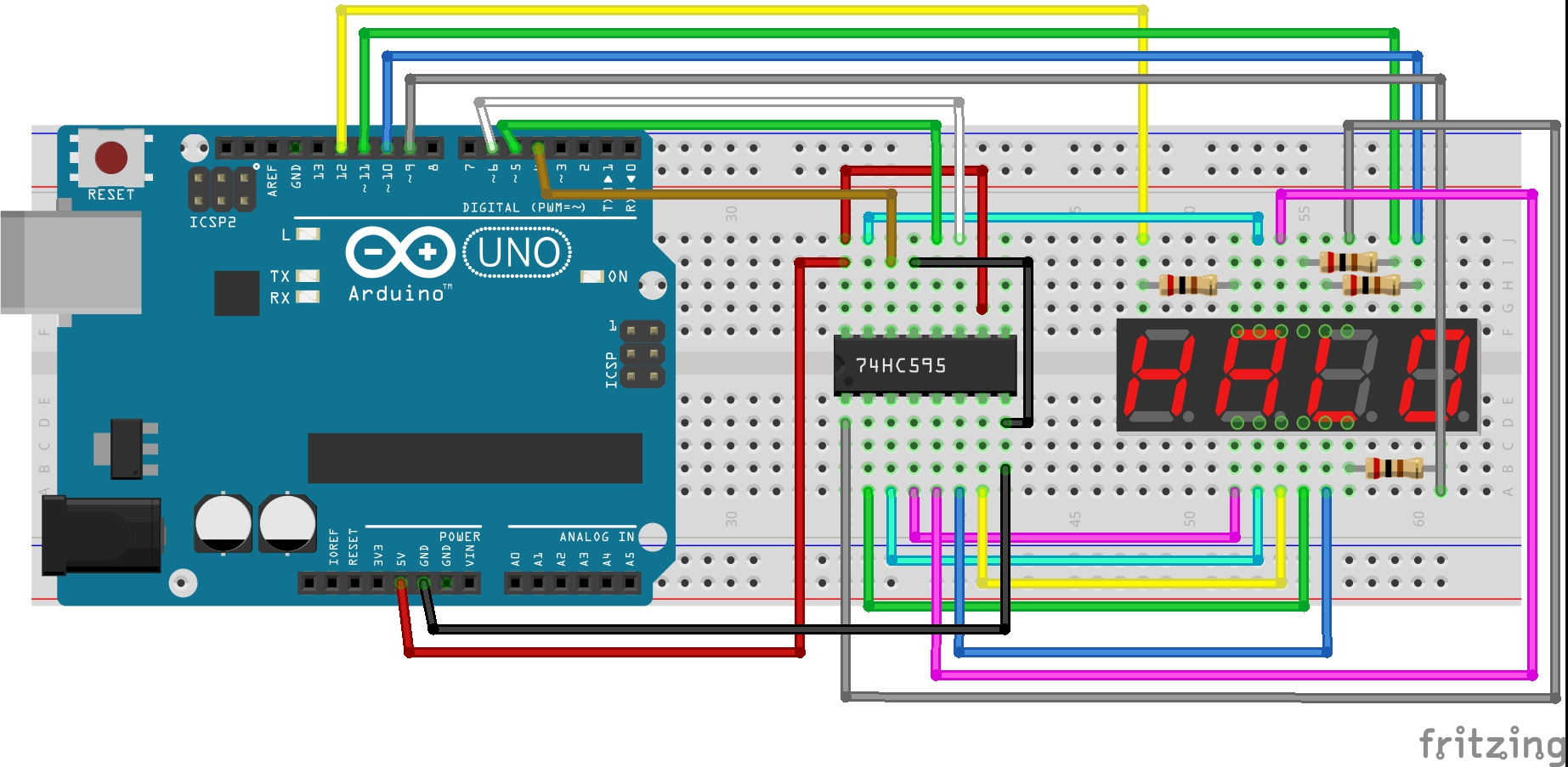
Team Lead: Cody

* I2C Color Sensor – Amy Swanson, Cody Birkland
* Camera/Image Processing R&D – Matt Sheldon

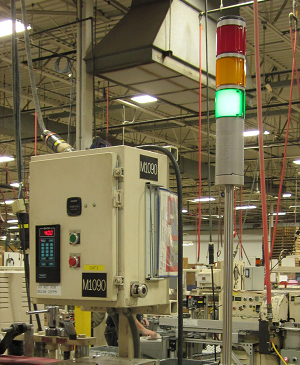
**User Interface Team: Michael, Chris. Nhat**

Team Lead:

* LCD R&D Michael
  + 7 segment display for now?



* Stack Light: Michael



* Operator Panel – Define switches for control, Define Lights/signals for operation and debug
* RGB LED driver with hex inputs Chris, Michael

**System Controls Team: Wilson, Cody**

Team Lead: Pending

* Controls Design and Planning
* Mechanical Design – Cody Birkland
* Power System Design
* Safety Circuits and Controls

**Schedule:**

Mid-august: Presentable system components

September: Basic working system

**Yakindu logic diagram software**

