Motor Control Progress Report #6
Skittle Sorter Project
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Week of 08/09/20

Problem:
- Little control structure was in place for running the system. As a result, the system would run its test sequence the moment the code was flashed, with no start or stop inputs.
- Although the code was updated to facilitate adding a second motor, no code was in place to implement a second motor.
- The control code (sorter.c) lacked any substantive comments.
- The user interface team was in need of an accessible way to understand the motor control code to make use of its functions.
- The sequence that occurs when executing an interrupt was not understood

Research:
- Setting up interrupts on the tm4c
  - http://users.ece.utexas.edu/~valvano/Volume1/E-Book/C12_Interrupts.htm
- Context switching, kernels
  - https://dmitryfrank.com/articles/how_i_ended_up_writing_my_own_kernel
  - https://en.wikipedia.org/wiki/Kernel_(operating_system)
- RISC
  - https://en.wikipedia.org/wiki/Reduced_instruction_set_computer
- SoCs
  - https://en.wikipedia.org/wiki/System_on_a_chip
  - https://electronics.stackexchange.com/questions/16828/microcontroller-vs-system-on-chip
- Assembly language
  - https://www.tutorialspoint.com/assembly_programming/assembly_basic_syntax.htm
- Linker scripts
  - https://wiki.osdev.org/Linker_Scripts

Action:
- Added start input to the testing sequence, and different modes of testing for separate hardware configurations
- Initialized ports and defines for second motor output
- Added descriptive comments throughout the control/testing code
- Drew up function call diagrams for relevant functions in the stepper code

Value:
- The motor control code is now considered functionally complete, and ready to be integrated with the rest of the system as they are completed
- Through comments and documentation, interfacing with the motor control code has been made easier for other teams
- A better understanding of interrupt execution, lower levels of programming, and the linking process may help to avoid bugs in the future