CSCI 460 Project Proposal

Members:

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Overview:

Our goal is to add features to the ARTK(Arduino Real Time Kernel). This kernel was developed by Paul Schimpf back in 2012. Currently, this kernel schedules processes by priority with round-robin preemption. Regarding memory, ARTK appears to use simple paging. One of the features we hope to implement is the ability to set different scheduling algorithms and memory management algorithms prior to program execution.

For each combination of algorithms, we will run the same set of “programs” on the Arduino and collect information such as run time, average processor time, average idle time, memory usage, and amount of unusable memory. These will all be compared to a baseline of running these tasks without ARTK as well as to algorithms that randomly divide memory and schedule processor time.

Work Share:

Andrew - Obtain Arduino UNO, Simulation Implementation
Jimmy - Scheduling Implementation (FIFO and LIFO)
Erik - Memory Implementation (Page Tables)

Schedule:

Progress meetings weekly, Finish Scheduling by Nov. 20, Memory by Nov. 22, Come together to finish the simulator over the weekend following.