SWEN-563/CMPE-663/EEEE-663

Real-Time and Embedded Systems

Project 4 - April 9, 2017

Zachary Weeden | zdw7287@rit.edu

Overview:

We were given the task to simulate a bank’s operation for a complete business day, this entailed a customer queue as well as 3 bank tellers to service each arriving customer in the 7 hour day. Subsequent customers arrived anywhere from 1 to 4 minutes of eachother and were added to the customer queue which was then handled by the tellers. Each of these customers had a time associated with their transaction which was how long their business would take once taken by a teller, this time ranged anywhere from 30 seconds to 8 minutes. All customers in the queue were guaranteed service regardless of bank hours. The outcome was to gather various metrics of the customers, tellers and of the day of business.

Areas of Focus:

Zachary Weeden: Responsible for entirety of Project 4 (see [https://github.com/zweed4u/Real-Time-and-Embedded-Systems/](https://github.com/zweed4u/Real-Time-and-Embedded-Systems/tree/master/Projects))

Analysis/Design:

Block diagrams and design stuff here

Test Plan:

Essentially non-applicable. For purposes of accessibility, testing of the program was done on a non-QNX machine but under Linux. GCC was used for compilation and building of the project. Under a different OS there were slight variations and discrepancies in some of the metrics calculated but nothing too startling.

Project Results:

Describe results and compared to expected results – analysis on results here – include screenshots

Lessons Learned:

Brief summary of what was learned in project and descriptions of difficulties encountered

Threads are very fickle and don’t play too nicely with one another without the involvement of a mutex to handle any shared variables/resources. Timers under the QNX system needed to be researched and clock\_\_gettime function proved very helpful in retrieving the epoch at function call which allowed for arithmetic to determine various elapsed times.