Team #4 Engineering Log Spring Term 2020

Team Member Name: Ali Saad

Date: 3/24/2020

- Going through youtube videos and various articles trying to find out how to minimize FreeRTOS to get it working on the Arduino UNO
- As of right now when I verify/upload in Arduino IDE, it gives an error saying that 140% of dynamic memory is being used.

Date: 3/26/2020

- Able to get a blinking LED working on FreeRTOS by forking Phillip Stevens open source Arduino_FreeRTOS_Library Github Repository
- https://github.com/feilipu/Arduino_FreeRTOS_Library
- Able to get it working on Arduino IDE, and accomplished getting LED to blink on UNO via FreeRTOS
- 17% of dynamic memory is being used

Date: 3/27/2020

- Installed a Oracle VirtualBox(VM) with Ubuntu as the OS
- Cloned Repository https://github.com/alisaad3/Arduino_FreeRTOS_Library
- Having problems figuring out how to run the code because with the IDE you just verify and upload the software and it gets the LED to blink but that's not how it works with linux
- Team Meeting with Tom

Date: 3/29/2020

- Team meeting with Andrew discussing outcome of project with everything being remote; Outcome will be announced Friday(April 3rd) for which direction our project will be headed
- Able to get FreeRTOS library successfully into linux, blocked on how to run the code

Date: 3/31/2020

- Team meeting every Tuesday/Thursday
- Cleaned up Github, placed proposal and schedules into folder
- Uploaded Arduino FreeRTOS Library to GitHub
- Created Engineering Log

- Created Milestone Log so we can hold each other accountable to meet our goals weekly/biweekly
- Worked on getting LED Blink in linux, blocked on whether or not a Makefile is needed
- Went through ReadME and read the FreeRTOS start guide
- https://www.freertos.org/FreeRTOS-quick-start-guide.html

Date: 4/3/2020-4/5/2020

- Re-Finalize Project Proposal and Schedule
- Testing Plan
- Questions for Joe
- Updated GitHub

Date 4/7/2020

- Blocked on Makefile getting error connecting to UNO
- Figured out how to connect to UNO, refer to https://github.com/jonathancpdx/Capstone-BallotBox/blob/master/AVRDUDE/README.md if having issues connecting to UNO
- Run make program to upload to UNO
- Error on makefile "TIMSK" issue as well as which port the uno is connected to is giving an error

Date 4/11/2020

- Nick and I were able to compile Makefile successfully
- Downloaded Arduino IDE on VM to see which port it is connected to and adjusted code properly to match port
- Changed port.c to work properly with atmega328p
- Successfully uploaded FreeRTOS on the Arduino UNO R3 from FreeRTOSfromFreeRTOS
- Next step and currently working on making a Task to make LEDBlink
- Soldered CASCADIO Board pin headers to connect with UNO, still need 12V power supply and LCD Screen

Date 4/14/2020

- Nick and I had a meeting with Joe to go through the Makefile and see what files we need to go through/edit to make the LED to Blink via FreeRTOS on the UNO.
- Need to edit FreeRTOSConfig.h, Partest.c, main.c, crflash.c, comtest.c
- All the files are meant for the Atmega323 instead of the 328P we need to configure those files to function with the Atmega328P.

Date 4/16/2020

- Nick and I configured FreeRTOSConfig.h, main.c
- Rewrote void vParttestLED function in Partest.c in order to have the correct LED turning on the UNO.

Date 4/17/2020

- Meeting with Advisor
- Delegated tasks for each individual Team Member
- Jonathan/Jaiqi finished Hardware portion and now delegated to start/be in charge of Documentation
- As Nick and I will resume with software portion of the project

Date 4/21/2020

- Able to get the LED lighting on and off but not able to get the LED blinking

Date 4/23/2020

- Configured files crflash.c, comtest.c
- Removed arguments that were not being used, which were causing an error.

Date 4/25/2020

- Successfully got the LED Blinking via FreeRTOS
- Successfully have FreeRTOS running on Arduino UNO R3 Atmega328P

Date 4/28/2020

- Testing all Atmega328P ports to make sure everything is functioning properly as well as to make sure they PORTB, PORTC, PORTD
- Refrence https://www.arduino.cc/en/Reference/PortManipulation,
- Atmega328P DataSheet: http://ww1.microchip.com/downloads/en/DeviceDoc/ATmega48A-PA-88A-PA-168A-PA-328-P-DS-DS40002061A.pdf
- PORTB, PORTC LED should blink and shouldn't blink for PORTC
- PORTB output pins 8-13 successfully functions, LED blinks , 0b00100000
- PORTC Analog input pins successfully functions, LED doesn't blink

Date 5/1/2020

- Meeting with Advisor
- Testing PORTD, TX light blinking and changing speed
- Milestone successful for the week
- Moving on to SBB Functionality to work with FreeRTOS OS

Date 5/4/2020

- Meeting with Joe to go over FreeRTOS, BlinkingLED, and Makefiles
- Now that we have a better understanding of FreeRTOS, change the Makefile.freertos in Galois/Free and Fair repository.
- https://github.com/GaloisInc/BESSPIN-Voting-System-Demonstrator-2019
- Goal is to make a blinking LED with their Makefile on the Atmega328P.
- Need to switch what they have for the riscV processor and convert to work for Atmega328P.

Date 5/5-5/11

- Had Midterms didn't make much technical progress

Date 5/8/2020

- Meeting with Tom discussing the best way to approach Free and Fairs Makefile and how to use the freeRTOS we have working and include it in thiers.

Date 5/12/2020

- Switched the Makefile target to the Atmega328p as well as edited the set defaults and directory pathways

Date 5/14/2020

- I am linking the FreeRTOS from our github to the OSGBB directory. We decided to use our FreeRTOS rather than Free & Fair FreeRTOS because FreeRTOS-Plus is for networks which we aren't including in the project and I have removed from the Makefile.

Date 5/15/2020

- Meeting with Tom to go over game plan and make sure we are on track and what we should have accomplished by June 4th(Group Presentation).

Date 5/18/2020

- Meeting with Joe
- Working on importing our FreeRTOS into Free & Fair and making sure we have all the files in order to compile SBB functionality. Taking away crypto, networking and logging in order to try to get this project to fit on the UNO.

Date 5/19/2020

- Getting compilation errors, fixing all to make sure all the correct dependencies are included and every file is pointing to the correct path

Date 5/21/2020

- Getting compilation errors, fixing all to make sure all the correct dependencies are included and every file is pointing to the correct path

Date 5/22/2020

- Met with Tom to give update on project status on 5/22/20
- Met with Joe to get us past the compilation errors because we aren't able to compile any files due to not able to find FreeRTOSConfig.h, FreeRTOS.h

Date 5/23/20 - 5/25/2020

- Worked on midterm

Date 5/26/2020

- Blocked on getting croutine.c to compile in order to get the .o file

Date 5/27/20

- Met with Joe from 4-6 pm, 10pm - 2 am
- Worked on getting files compiled
- Got size of 366k then optimized it to the lowest level and got 237k for the size

Date 5/28/2020

- Met with Joe 10:30 pm
- Worked on continuing to get the full size of what is required to build the SBB
- Working on finding the correct crypto files required for AVR and correcting the rtc to compile

Team Member Name: Jonathan Christian

Date: 3/23/2020

- Research SD card formatting
- Format SD card to FAT32
- Run System Check Code
- Re-run Motor, SD card and RTC Arduino Code

Date: 3/25/2020

- Update System Check Code
- Monitor Serial Monitor for output
- Log Button Presses on SD Card

Date: 3/29/2020

- Research RTC library

Date: 3/31/2020

- Uploaded Arduino Code to Github
- Revised Pin Layout Diagram
- Updated Meeting Calendar
- Set RTC to correct time and date (Temporary)
- Researched Waveshare Barcode Scanner Operation

Date: 4/3/2020-4/5/2020

- Revise System Check to display current time/date
- Re-Finalize Project Proposal and Schedule
- Test Plan
- Questions for Joe
- Edit System Check with Date/Time Pull
- Update Github

Date: 4/17/2020-4/30/2020

- Create and progress on the Test Document
- Decide on type of tests that will be performed
- Team update

Date: 5/1/2020

- Create Final Report Document
- Create Final Project Presentation
- Update Github - Team Update

Team Member Name: Jiaqi Liu

Date:3/31/2020

- Run Arduino code and get RTC show up in monitor
- Try to get connect the scanner to the shield without the wire provided
- Pin Layout Diagram

Date: 4/5/2020-5/1/2020

- Do the documentation(Final report & revise the proposal)
- Testing Plan
- Questions for Joe
- Connect the circuit
- Test with SD card
- Get Arduino code working

Team Member Name: Nick Long

Date: 3/31/2020

- Installed Unbuntu on local machine
- Created a basic blink program in C
- Downloaded AVRDUDE and began to try to upload code on to the Uno

Date: 4/2/2020

- Successful uploaded the C code for blink on the the Uno using AVRDUDE
- Created documentation for the team to copy my results on uploading blink
- Worked on reducing the size of the FreeRTOS file to share with the team
- Worked on getting FreeRTOS to compile for the Uno

Date: 4/3/2020-4/5/2020

- Re-Finalize Project Proposal and Schedule
- Testing Plan
- Questions for Joe

Date 4/11/2020

- Ali and I were able to compile Makefile successfully
- Changed port.c to work properly with atmega328p
- Successfully uploaded FreeRTOS on the Arduino UNO R3 from FreeRTOSfromFreeRTOS
- Next step and currently working on making Task to make LEDBlink

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- Ali and I had a meeting with Joe to go through the Makefile and see what files we need to go through/edit to make the LED to Blink via FreeRTOS on the UNO.
- We need to edit the files for the Atmega323 to work with our Atmega328P.

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- Worked on FreeRTOSConfig.h, main.c
- Rewrote void vParttestLED function in Partest.c in order to have the correct LED turning on the UNO.

Date 4/17/2020

- Meeting with Advisor
- Resume work software portion of the project

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- Able to get the LED lighting on and off but not able to get the LED blinking

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- Configured files crflash.c, comtest.c

- Removed unneeded code

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- Successfully have FreeRTOS running on Arduino UNO R3 Atmega328P

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- Need to switch what they have for the riscV processor and convert to work for Atmega328P.

Date 5/5-5/11

- Had midterm exams

Date 5/8/2020

- Meeting with Tom discussing the best way to approach Free and Fairs Makefile and how to use the freeRTOS we have working and include it in thiers.

Date 5/19/2020

- Met with Joe to go over more of theSBB code and find our issues with the layers of Makefiles. Still needs work but progress was made.

Date 5/5-5/11

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