

Progress Presentation-I

e-Yantra Summer Internship-2016
FreeRTOS on LPC2148

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July 4, 2016

Overview of Project

Progress
Presentation-I

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Overview of
Project

Overview of Task

Task
Accomplished

Challenges Faced

Future Plans

References

Thank You

- Project Name : FreeRTOS on LPC2148
- Objective : To create modules on the implementation of basic FreeRTOS concepts on LPC2148
- Deliverables : Documentation of each and every FreeRTOS concepts that has been implemented on LPC2148.

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| Sr No. | TASKS | DEADLINES |
|--------|--|-----------|
| 1. | Basics of RTOS | 4 days |
| 2. | Multi-Tasking Examples | 5 days |
| 3. | Concepts of Semaphore and Mu- tex examples based on the concept | 4 days |
| 4. | Inter-Process communication- Mailbox and queues. Examples based on the concept | 3 days |
| 5. | Concept of Context Switching. Examples based on the concept | 5 days |
| 6. | A mini project that covers all the modules | 3 days |

Task Accomplished

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- Learning basics of RTOS.
 - What is RTOS.
 - Its characteristics.
 - Difference between RTOS, GPOS.
- Implemented Multi-Tasking using FreeRTOS in Firebird V(LPC2148)
- Implemented Mutexes, Binary Semaphore and Counting Semaphore.
- Implemented Inter-Process communication.
 - Queues
 - Mailbox through Task notification.

Mutex

Back

Forward function access denied

Forward

Back Function access denied

Back

Forward function access denied

Forward

Back Function access denied

Back

Binary Semaphore

Semaphore given

Back

Semaphore given

Forward

Semaphore given

Back

Semaphore given

Forward

Semaphore given

Back

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P3:Hungry
P5:Ate
P5:Thinking
P4:Left fork obtained Eating :)
P2:Right fork obtained
P4:Ate
P4:Thinking
P2:Left fork obtained Eating :)
P1:Right fork obtained
P3:Hungry
P5:Hungry
P2:Ate
P2:Thinking
P1:Left fork obtained Eating :)
P4:Right fork obtained
P1:Ate
P1:Thinking
P4:Left fork obtained Eating :)
P3:Right fork obtained
P5:Hungry
P2:Hungry
P4:Ate
P4:Thinking

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- **Issue** : Porting RTOS into Firebird V and the configurations that needed changes.
- **Solution** : Replace the startup.s file and include various other libraries.
- Finding Implementation level difference between Binary Semaphore and Mutex.
- **Issue** : Loss of Data in Serial Communication.
- **Solution** :
 - Shortening the string size(temporary solution),
 - Tried creating a Mutex for accessing the Serial communication Functions.
 - Trying to solve Using Queues

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- Implement Context switching.
- Create a mini project that can demonstrate all the learnt concepts together .

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- <http://www.freertos.org>
- <http://tinymicros.com/>
- <http://www.ocfreaks.com/cat/embedded/lpc2148-tutorials/>
- <http://www.rtos.be/2013/05/mutexes-and-semaphores-two-concepts-for-two-different-use-cases/>

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THANK YOU !!!