Assignment 2

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Abstract

The second assignment for the Real-Time systems course consisted of developing an application for exploring how priorities, execution-time, periods influence eachother in practise in a Real-Time system.

For more details on the assignment, see the `assignment_2.md` document in the repository at github.

`http://github.com/peakbreaker/tuts_FreeRTOS`

Introduction

To fullfill the requirements by the assignment it is planned to implement the RTOS with three tasks:

- prioritysettask
- matrixtask
- communicationtask

The idea is that matrixtask will be responsible charge of matrix calculations, while communicationstask will handle communication to a peripheral (like transmitting the calculations from matrixtask). Finally prioritysettask will measure and manage the tasks, and set priorities according to the requirements of our application.

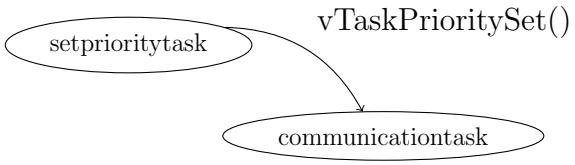

Figure 1: Tasks

We aim with this to answer questions relating to execution priorities in FreeRTOS, and find out how priorities, periods and pre-emptiveness influence the behavior of execution in Real Time systems.

Code

Worth noting here is that the main function must pass the handlers of the matrixcalctulation and commun icationtask to the prioritysettask so that it can' access the tasks. In doing this we are also doing checks to make sure everything went well in setting up the tasks. thus we implemented the following main procedure:

```
int main(void)
{

}
```

Since we were given the matrixcalculation task and communicationtask, we will simply look here at how we implemented the prioritysettask:

Note here the use of ...

There was done no changes to the tasks given in the assignment. They were therefore implemented in their own file to reduce clutter and make the code easier to read

Results

The resulting output from the program were as follows :

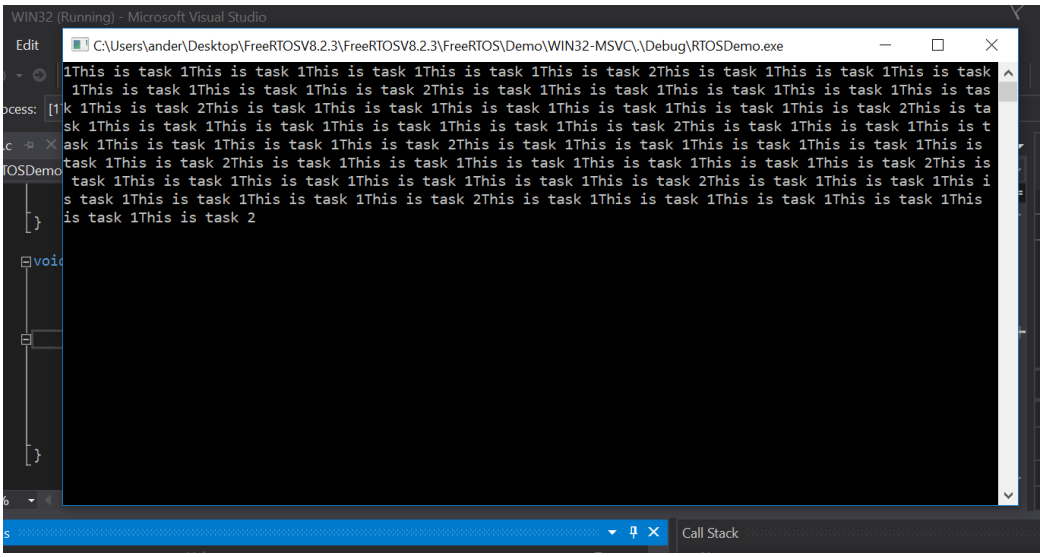

Figure 2: Debug output

As the output shows,

The repository for the entire assignment can be found at my github :

`http://github.com/peakbreaker/tuts_FreeRTOS`

What did we learn?