

Periodic Task Executor API

2016/03/04	0.1	Initial Version	Muhammad Z
2016/05/09	0.99	Final Draft	Muhammad Z
2018/03/19	1.0	First Release	Alex K.

Summary

The Periodic Executor module should provide at minimum an implementation for the following APIs.

API

You should provide support for the following API at least:

- Creation

```
PeriodicExecutor* PeriodicExecutor_Create(const char* _name,  
                                           clockid_t _clk_id);
```

Create a periodic executor that will measure time using given clock.

Clockid_t specify the id of the system clock to be used. CLOCK_REALTIME, CLOCK_REALTIME_COARSE, CLOCK_MONOTONIC and similar provided it's supported by the underlying system.

- Cleanup

```
void PeriodicExecutor_Destroy(PeriodicExecutor* _executor);
```

Destroy previously created executor. Cleaning all allocated memory and resources.

- Adding task to the executor

```
int PeriodicExecutor_Add(PeriodicExecutor* _executor,  
                        int (*_taskFunction)(void *),  
                        void* _context,  
                        size_t _period_ms);
```

_taskFunction is represented by a user provided function pointer. The task is called with *_context* as the only parameter
_period_ms is the period of recurrence in milliseconds.

- Start running the executor

```
size_t PeriodicExecutor_Run(PeriodicExecutor* _executor);
```

Start running the tasks previously added to the executor or resume a previously paused Executor.

This function will return in one of two cases:

1. The tasks were executed to completion.
2. The executor was paused

This function returns the number of execution cycles (user task function calls) performed.

- Pause running the executor

```
size_t PeriodicExecutor_Pause(PeriodicExecutor* _executor);
```

Pause the execution of the executor. If a task is currently being executed then pause after it has completed the current cycle.

This function returns the number of tasks remaining inside the executor.

The paused executor can be resumed later on by calling PeriodicExecutor_Run API.