

Create a real-time system with two LED tasks that can be controlled by a master task scheduler. The LED tasks will toggle LEDs based on commands received through a queue, and the scheduler will generate random commands at regular intervals using a software timer.

Components:

1. LED Control Queue (**ledControlQueue**):

- A FreeRTOS queue is established to facilitate communication between the master task scheduler and the LED tasks.
- Each command in the queue represents an action to turn an LED on or off (1 or 0).

2. LED Tasks (**ledTask**):

- Two LED tasks are created, representing LED1 and LED2.
- These tasks continuously wait for commands from the queue and toggle their respective LEDs based on the received commands.

3. Task Scheduler Timer (**taskSchedulerTimer**):

- A FreeRTOS software timer is employed to periodically invoke the **taskSchedulerCallback** function.
- The timer is set to fire every 1000 milliseconds (1 second), simulating a periodic task scheduler.

4. Task Scheduler Callback (**taskSchedulerCallback**):

- This function generates random task commands (0 or 1) representing actions to be performed by the LED tasks.
- The generated commands are placed into the LED control queue for processing by the LED tasks.