

21)

```
while (1)
{
    /* USER CODE END WHILE */
    // Toggle Green LED
    HAL_GPIO_TogglePin(GPIOD, GPIO_PIN_12);
    // Delay (~40mSec)
    for (int i=0; i<400000; i++);
    /* USER CODE BEGIN 3 */
}
/* USER CODE END 3 */
}
```

22)

```
/* USER CODE BEGIN RTOS_TIMERS */
/* start timers, add new ones, ... */
HAL_NVIC_SetPriority(EXTI0_IRQn, 0, 0);
HAL_NVIC_EnableIRQ(EXTI0_IRQn);
HAL_NVIC_SetPriority(EXTI0_IRQn, 0, 5);
/* USER CODE END RTOS_TIMERS */

void Start_ORANGE_LED(void const * argument)
{
    /* USER CODE BEGIN 5 */
    /* Infinite loop */
    for(;;)
    {
        // Orange LED on
        HAL_GPIO_WritePin(GPIOD, ORANGE_LED, GPIO_PIN_SET);
        // Delay 500 mSec
        osDelay(500);
        // Orange LED off
        HAL_GPIO_WritePin(GPIOD, ORANGE_LED, GPIO_PIN_RESET);
        // Delay 1500 mSec
        osDelay(1500);
    }
    /* USER CODE END 5 */
}
```

```

void Start_GREEN_LED(void const * argument)
{
    /* USER CODE BEGIN Start_GREEN_LED */
    // Delay 700 mSec
    osDelay(700);
    /* Infinite loop */
    for(;;)
    {
        // Green LED on
        HAL_GPIO_WritePin(GPIOD, GREEN_LED, GPIO_PIN_SET);
        // Delay 500 mSec
        osDelay(500);
        // Green LED OFF
        HAL_GPIO_WritePin(GPIOD, GREEN_LED, GPIO_PIN_RESET);
        // Delay 3500 mSec
        osDelay(3500);
    }
    /* USER CODE END Start_GREEN_LED */
}

```

23)

```

void Start_GREEN_LED(void const * argument)
{
    /* USER CODE BEGIN 5 */
    // Delay 700 mSec
    osDelay(700);
    /* Infinite loop */
    for(;;)
    {
        // Green LED on
        HAL_GPIO_WritePin(GPIOD, GREEN_LED, GPIO_PIN_SET);
        // Delay 500 mSec
        osDelay(500);
        // Green LED OFF
        HAL_GPIO_WritePin(GPIOD, GREEN_LED, GPIO_PIN_RESET);
        // Delay 3500 mSec
        osDelay(3500);
    }
    /* USER CODE END 5 */
}

```

```

void Start_ORANGE_LED(void const * argument)
{
    /* USER CODE BEGIN Start_ORANGE_LED */
    /* Infinite loop */
    for(;;)
    {
        // Orange LED on
        HAL_GPIO_WritePin(GPIOD, ORANGE_LED, GPIO_PIN_SET);
        // Delay 500 mSec
        osDelay(500);
        // Orange LED off
        HAL_GPIO_WritePin(GPIOD, ORANGE_LED, GPIO_PIN_RESET);
        // Delay 1500 mSec
        osDelay(1500);
    }
    /* USER CODE END Start_ORANGE_LED */
}

void Start_SERVER_TASK(void const * argument)
{
    /* USER CODE BEGIN Start_SERVER_TASK */
    /* Infinite loop */
    for(;;)
    {
        // Call WaitEFSEma()
        WaitEFSEma();
        // Flash Blue LED
        for (int i=0; i<40; i++) // cycles = 10Hz * 4sec = 40cycles; T = 1/10 = 0.1; 0.1/2 = 0.05 = 50mSec
        {
            HAL_GPIO_WritePin(GPIOD, BLUE_LED, GPIO_PIN_SET);
            HAL_Delay(50);
            HAL_GPIO_WritePin(GPIOD, BLUE_LED, GPIO_PIN_RESET);
            HAL_Delay(50);
        }
        // Turn Red LED off
        HAL_GPIO_WritePin(GPIOD, RED_LED, GPIO_PIN_RESET);
    }
    /* USER CODE END Start_SERVER_TASK */
}

```