



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

## **MKEL1123-05 Advanced Microprocessor System**

### **Group 4 - Blinky Test**

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## **Short Introduction on Process of setting up the Blinky application**

### **Step 1: Set up code in STM32 Cube IDE**

In the MCU/MPU Selector tab, STM32F401RE had been selected as the board for demonstration for blinking LED in simulation. Once it had been selected, in the “Pinout and Configuration” section, pin PA5 had been utilized as general-purpose input or output (GPIO) as it is needed to be connected to LED for the simulation. After that, select RCC which is in the “System Core” part to set the high-speed clock as Crystal or Ceramic Resonator. After the compilation, code in main.c will be generated based on set up of the pin of STM32F401RE in “Pinout and Configuration” section. In main function of main.c file, there is a while loop. In the while loop, the intended code can be implemented which is set up of pin PA5 as toggling pin and time for each blink. Then, the debug button is being selected to flash the code into STM32F446RE board.

### **Step 2: Testing Different Scenario with STM32F446RE Board**

For our group, there are two scenarios which are 0.5 seconds per blink and 5 second per blink had been set up for the comparison purpose. In the first scenario, step 1 had been implemented. In the while loop of main.c, the code below had been implemented.

```
HAL_GPIO_TogglePin(GPIOA,GPIO_PIN_5); //set up pin PA0 as GPIO  
  
HAL_Delay(500); //0.5 seconds per blink
```

After that, to move towards the second scenario, in the main.c, the code had been changed to the code labelled below to change from 0.5 seconds to 5 second and the “terminate and relaunch” button is being selected so that the latest changes to code can be flashed into the STM32F446RE board.

```
HAL_GPIO_TogglePin(GPIOA,GPIO_PIN_5); //set up pin PA0 as GPIO  
  
HAL_Delay(5000); //5.0 seconds per blink
```

### **Other Details:**

Short presentation video: <https://youtu.be/cHr0PZEtomY>

GitHub Account: [https://github.com/kychow006/Advanced-Microprocessor-System-Project/tree/main/Code\\_to\\_STM32\\_Board](https://github.com/kychow006/Advanced-Microprocessor-System-Project/tree/main/Code_to_STM32_Board)