

STM32F4 Development Board Familiarization

Instructions of setting up the Blinky app process :-

Step 1: Create a New Project

1. Open STM32CubeMX → New Project
2. Select STM32F446RETx
3. Enable PA5 (GPIOA_PIN_5) as an output. Output level is set to low (logic '0').
4. Check clock status at configuration setup.
5. Generate code for MDK-ARM (Keil)

Step 2: Configure LED Pin

1. In gpio.c, confirm the configuration of GPIOA pin5.
2. Check HAL_Init() & SystemClock_Config().
3. Use HAL_GPIO_WritePin command to verify LD2(Green_LED) is functioning.

Step 3: Write the Blink Logic

1. Paste the below inside While(1){ }

```
//BSRR OP
for (int i=0;i<3;i++){
    GPIOA -> BSRR = GPIO_PIN_5;           //Fast blink 3 times
    HAL_Delay(200);                       //write 1 to bit 5 of BSRR, bit 0 to 15 means 'Set(Logic 1)'
    GPIOA -> BSRR = (uint32_t)GPIO_PIN_5 <<16; //write 1 to bit 21 of BSRR, bit 16 to 31 means 'Reset(Logic 0)'
    HAL_Delay(200);                       //LED ON' Hold for 0.2s
}                                         //LED OFF' Hold for 0.2s
HAL_Delay(3000);                         //Delay 3s then begin Slow blink
for (int n=0;n<3;n++){                  //Slow blink 3 times
    GPIOA -> BSRR = GPIO_PIN_5;           //write 1 to bit 5 of BSRR, bit 0 to 15 means 'Set(Logic 1)'
    HAL_Delay(700);                       //LED ON' Hold for 0.7s
    GPIOA -> BSRR = (uint32_t)GPIO_PIN_5 <<16; //write 1 to bit 21 of BSRR, bit 16 to 31 means 'Reset(Logic 0)'
    HAL_Delay(700);                       //LED OFF' Hold for 0.7s
}
```

Step 4: Translate, Build and Download

1. Click Translate (Ctrl+F7) and confirm no Error and no Warning.
2. Click Build (F7) to create the 'hex file'.
3. Connect the board via USB and check ST-Link is available.
4. Click Download(F8) to download code to flash memory.

Step 5: Demonstration

The LED on **PA5(Green_LED)** will blink 3 times quickly, wait 3 seconds, then blink 3 times slowly.