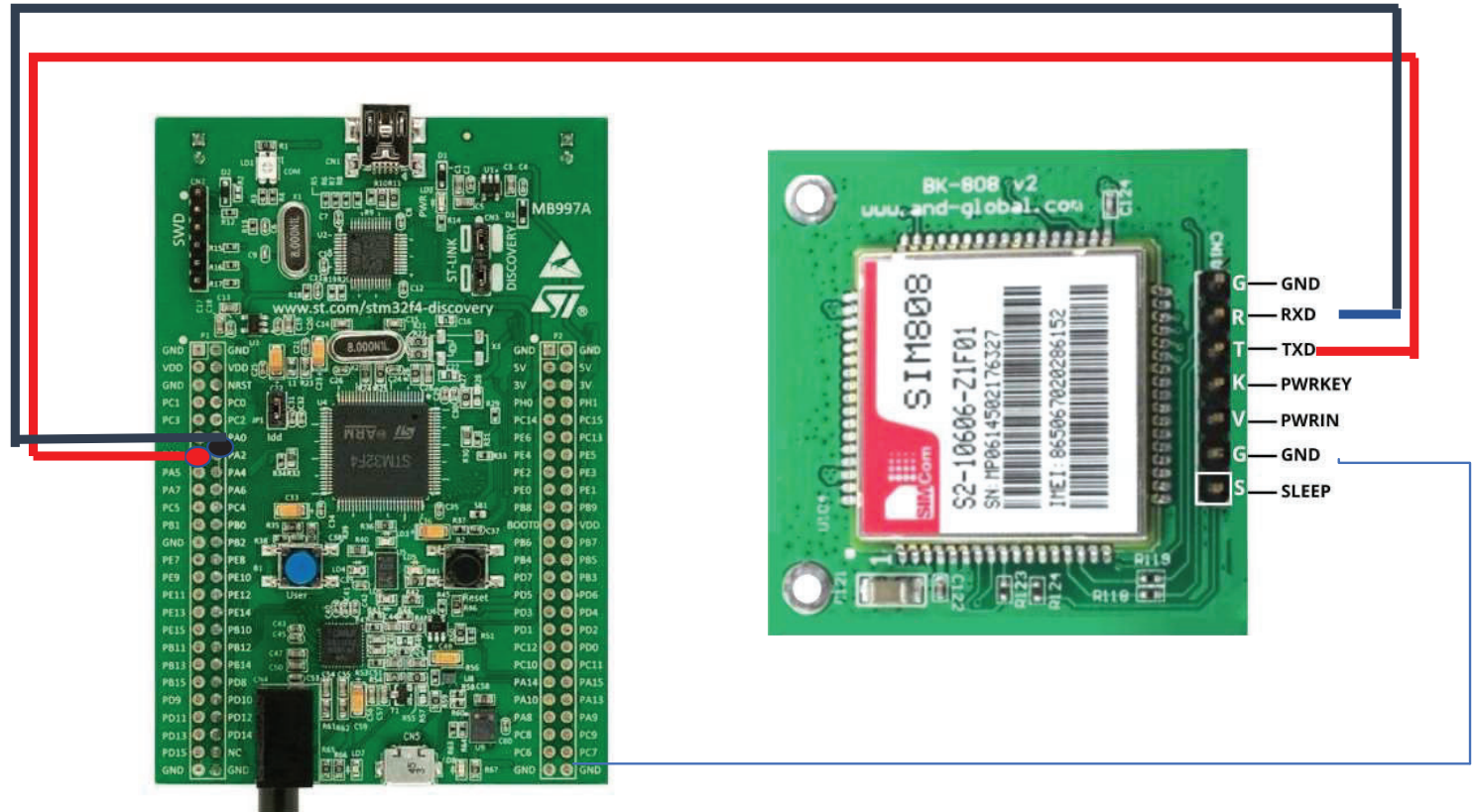
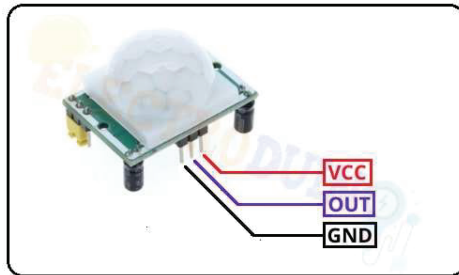


Corr TD3

GND Modem → GND STM32

TXD Modem → RXD STM32 (PA3)

RXD Modem → TXD STM32 (PA2)



➤ AT+CMGS="+216 98 \*\*\* \*\*"

➤ Hello LCE-IoT2 22\_23

# 1. Initialisation UART

```
static void MX_USART2_UART_Init(void)
{
    huart2.Instance = USART2;
    huart2.Init.BaudRate = 115200;
    huart2.Init.WordLength = UART_WORDLENGTH_8B;
    huart2.Init.StopBits = UART_STOPBITS_1;
    huart2.Init.Parity = UART_PARITY_NONE;
    huart2.Init.Mode = UART_MODE_TX_RX;
    huart2.Init.HwFlowCtl = UART_HWCONTROL_NONE;
    huart2.Init.OverSampling = UART_OVERSAMPLING_16;
    if (HAL_UART_Init(&huart2) != HAL_OK)
    {
        Error_Handler();
    }
}
```

# 1. Initialisation GPIO

```
static void MX_GPIO_Init(void)
{
    GPIO_InitTypeDef GPIO_InitStructure = {0};

    /* GPIO Ports Clock Enable */
    __HAL_RCC_GPIOH_CLK_ENABLE();
    __HAL_RCC_GPIOA_CLK_ENABLE();
    __HAL_RCC_GPIOD_CLK_ENABLE();

    /*Configure GPIO pin Output Level */
    HAL_GPIO_WritePin(GPIOD, GPIO_PIN_15, GPIO_PIN_RESET);

    /*Configure GPIO pin : PA1 */
    GPIO_InitStructure.Pin = GPIO_PIN_1;
    GPIO_InitStructure.Mode = GPIO_MODE_IT_RISING;
    GPIO_InitStructure.Pull = GPIO_NOPULL;
    HAL_GPIO_Init(GPIOA, &GPIO_InitStructure);

    /*Configure GPIO pin : PD15 */
    GPIO_InitStructure.Pin = GPIO_PIN_15;
    GPIO_InitStructure.Mode = GPIO_MODE_OUTPUT_PP;
    GPIO_InitStructure.Pull = GPIO_NOPULL;
    GPIO_InitStructure.Speed = GPIO_SPEED_FREQ_LOW;
    HAL_GPIO_Init(GPIOD, &GPIO_InitStructure);

    /* EXTI interrupt init*/
    HAL_NVIC_SetPriority(EXTI1_IRQn, 0, 0);
    HAL_NVIC_EnableIRQ(EXTI1_IRQn);
}
```

### 3. La fonction GSM\_SendSms

```
void GSM_SendSms(char * PhoneNumber, char * texto){
    // Preparing config message
    char* prefix = "AT+CMGS=\"";
    char* full_message = malloc(strlen(prefix)+strlen(PhoneNumber));
    strcpy(full_message,prefix);
    strcat(full_message,PhoneNumber);
    strcat(full_message,"\"\\r\\n");

    // Sending config message
    HAL_UART_Transmit_IT(&huart2, full_message, strlen(full_message));

    // Waiting for confiramtion
    uint8_t RX_BUFFER[10]="";

    while(RX_BUFFER[0]!='>')
        HAL_UART_Receive_IT(&huart2,RX_BUFFER,10);

    // Preparing Alert message
    full_message="";
    strcpy(full_message,texto);
    strcat(full_message,"\"\\r\\n");

    // Sending Alert message
    HAL_UART_Transmit_IT(&huart2, full_message, strlen(full_message));
}
```

## 4.Main

```
int main(void)
{
    HAL_Init();
    SystemClock_Config();
    MX_GPIO_Init();
    MX_USART2_UART_Init();

    while (1)
    {
        if(Intrusion_Detected){
            GSM_SendSms("+21698*****", "Hello LCE-IoT2 22_23");
            Intrusion_Detected=0;
        }
    }
}
```

## 4. EXTI\_Callback

```
void HAL_GPIO_EXTI_Callback(uint16_t GPIO_Pin)
{
    HAL_GPIO_WritePin(GPIOD, GPIO_PIN_15, GPIO_PIN_SET);
    Intrusion_Detected=1;
    HAL_Delay(10);
}
```

## 4. Global

```
void HAL_GPIO_EXTI_Callback(uint16_t GPIO_Pin)
{
    HAL_GPIO_WritePin(GPIOD,GPIO_PIN_15,GPIO_PIN_SET);
    Intrusion_Detected=1;
    HAL_Delay(10);
}
|
int main(void)
{
    HAL_Init();
    SystemClock_Config();
    MX_GPIO_Init();
    MX_USART2_UART_Init();

    while (1)
    {
        if(Intrusion_Detected){
            GSM_SendSms("+21698*****", "Hello LCE-IoT2 22_23");
            Intrusion_Detected=0;
        }
    }
}
```