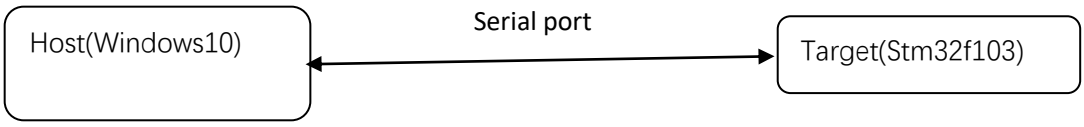
1. Development environment

Keil5 is for mcu,
Qt Creator5.12 is for host software

2. Hardware

The Host PC with Windows10 and MCU: STM32F103, the host communicate with target go through serial port.



For the Target:
LED:
PB5 -> LED1, push-pull output
PE5 -> LED2, push-pull output
Button
PE3 -> KEY1, pull-down input
Timer
Timer3 is used for blinking led1
USART
PA9 -> USART1_TX
PA10 -> USART1_RX

3. Process

3.1Test1

1. Power on the target, the led blink 500ms/t ,led2 is off, and start host soft ,select the correct com port and open it.
2. click the Connect button,host software will send the connect message to the target by com4.

0x5A	0x1C				0x5F

3 .target will enter the connected state,led1 is off, and led2 is on.
4 .push the key1 on the target, the target will send the button pressed message to the host

0x5B	0x1C	0x1B			0x5F

5 . host will send the ack message to the target once it receive the button pressed message from the target.
6 . the target will blink led1 3times/s, then turn off the led1 after receiving the ack message from host.
7 . click the Disconnect button,host software will send the disconnect message to the

target by com4.

0x5A	0x1D				0x5F

8 . the target will bilnk led1 and turn off led2 after receiving disconnect message from host.

3.2Test2

1. Power on the target, the led blink 500ms/t ,led2 is off, and start host soft ,select the correct com port and open it.

2. click the Connect button,host software will send the connect message to the target by com4.

0x5A	0x1C				0x5F

3 .target will enter the connected state,led1 is off, and led2 is on.

4 . click the Blink250ms button, host will send the blink message to the target, then led1 will blink in 250ms cyclic

0x5A	0x1C	0x1E	1		0x5F

5 . click the Blink500ms button, host will send the blink message to the target, then led1 will blink in 500ms cyclic

0x5A	0x1C	0x1E	2		0x5F

6 . click the Blink1000ms button, host will send the blink message to the target, then led1 will blink in 1s cyclic

0x5A	0x1C	0x1E	3		0x5F

7. click the turn off button ,will send tne turn off led1 cmd to the target during the led1 blink, then the led1 will go off.

0x5A	0x1C	0x1E	0		0x5F

8 . click the Disconnect button,host software will send the disconnect message to the target by com4.

0x5A	0x1D				0x5F

9. the target will bilnk led1 and turn off led2 after receiving disconnect message from host

3.3End