Ai-WB2 series module establishes an SPP connection to the mobile phone and transmits data in UART-Bluetooth LE transtransmission mode

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1. Preparation of hardware and software

Hardware and software that need to be prepared: Ai-WB2 series module or development board, Type-C data cable, Mobile side downloads Bluetooth debug tool, download link is https://pan.baidu.com/s/1hQeigKrC7tkB5bp1OALzfg?pwd=1234

Password: 1234

2. Create a Bluetooth service and broadcast it

1. First ensure the module or the development board power on and to print ready information, as shown below:

🔥 SS	SCOM V5.12 Sei	rial/Net data	debugger,	Author:XiXiaoM	leng(Tintir	n),2618	3058@qq.com					_	\times
PORT	COM_Setting	s Display	Send_Data	Multi_Strings	Tools	Help	repay_author	PCB_proofing					
######################################	######################################	l_iot_sdk_1. 022 17:15:37 f17f	6. 36	****									 ^
ready													
											4		~
Clear	Data OpenFile	H:\1.bin			Sen	dFile	Stop ClearS	end OnTop V E	nglish SaveCo	afig EXT -	•		
ComNum	COM7 USB-SERI	L CH340	► HEX:	Show SaveData	Recei	vedToI	7ile 🗌 SendHE	X 🗌 SendEvery: 2	000 ms/Tim	AddCrLf			
) 🛞	loseCom 🖒	More Sett	ings Sho	v Time and Pack NG="www.hai.h.	e OverTim	e: 20	ms No 1 Byt	es Add Verify: N	one		J		
E BT	S 🗌 DTR BaudR	at 115200	I AL TECT	.no- www. Daidu.	U UIII					^			

2. Send below commands

AT+BLEINIT=2

AT+BLEGATTSSRVCRE

AT+BLEGATTSSRVSTART

AT+BLEADDR?

AT+BLEADVDATAEX="aithinker_bl602","A002","0102030405",1

As shown below ,



3. Create a BLE connection

Open the nrfConnect debugging assistant on the mobile APP, click SCAN to scan, find the MAC address of the Bluetooth LE server, and click CONNECT to connect. At this time, the UART port should print the log information similar to + BLECONN: 0 and "60:51:42: fe: 98: aa", which means that the Bluetooth LE connection has been established, as shown below,

10:21 🗣 🖬 🛛 🔊 🔞 🕼 🖄 💼	n SSCOM V5.12 Serial/Net data debugger,Author:XiXiaoMeng(Tintin),2618058@qq.com —	×
	PORT COM_Settings Display Send_Data Multi_Strings Tools Help repay_author PCB_proofing	
BONDED ADVERTISER ATTHINKER_BL602 X	A * *02.111.1*2 OK A* *145.047.153.040.0E OK	^
CONNECTED CLIENT SERVER :	NA "READINTSSIDTAAT AA "READING" AA "READING"	
Generic Attribute UUID: 0x1801 PRIMARY SERVICE	NK AT "HELKUNATART- <mark>AT TALIA-T_INS</mark> R" "A002", "0100030405", 1	
Generic Access UUID: 0x1800 PRIMARY SERVICE	*122COMP XAAT 0, 0, 0, 50, 50 *122COMP XAAT 0, 0, 0, 50, 50 *122COMP XAAT 0, 0, 0, 40, 0, 50	
Unknown Service UUID: 0xA002 PRIMARY SERVICE		
Unknown Service UUID: 0xA003 PRIMARY SERVICE		
		~
	ClearData OpenFile X: V1. bin SendFile Stop ClearSend OnTop English SeveConfig EXT -	
	Combing Other US-SIZEAL COMO ▼ Image: Construction ▼ Image: Construction There is and ranke services of the large interview of the large in	

4. BLE Bluetooth server query service and discovery features

Send AT+BLEGATTSSRV? And AT+BLEGATTSCHAR? to query and discover the properties, as shown below,

🌇 SSCOM V5.12 Serial/Net data debugger,Author:XiXiaoMeng(Tintin),2618058@qq.com	_	\times
PORT COM_Settings Display Send_Data Multi_Strings Tools Help repay_author PCB_proofing		
AT+BLEINIT=2		^
OK AT+BLEGATTSSRVCRE		
OK AT+BLEGATTSSRVSTART		
OK AT+DIIADDR? +MILADDR: "7c:b9:4c:1d:c4:bo"		
0K AT+BLEADVDATAEX="aithinker_b1602", "A002", "0102030405", 1		
0K +BLECONN:0, "5 _a : 1 b: 9c: 4c: df: b0" +BLECONNFARAM:0, 0, 0, 6, 0, 500 +BLECONNFARAM:0, 0, 0, 36, 0, 500 +BLECONTSERV:0, 0, 0, 0, 0, 500 AT+BLEGATTSSEV:1, 0, 0xA002, 1 +BLEGATSSEV:2, 0, 0xA002, 1		
DK AT *BLEGATISCHAR? *BLEGATISCHAR? *BLEGATISCHAR: char '. 1, 1, 0x:000, 0x00 *BLEGATISCHAR: char '. 1, 20:201 *BLEGATISCHAR: char '. 1, 3, 0x:001 *BLEGATISCHAR: char '. 1, 3, 0x:001 *BLEGATISCHAR: char '. 1, 4, 0x:001 *BLEGATISCHAR: char '. 2, 1, 0x:001 *BLEGATISCHAR: char '. 1, 4, 0x:001 *BLEGATISCHAR: char '. 1, 0x:001 *BLEGATI		
20		
		~
LieerFace Openite In. u. Din Sendrie Stop ClearSend Uniop/ English SaveConfig ET -	_	
Combung LUMY USB=SEXIAL LIS3U V HEXSNow SaveJata Received of ile SendHEX SendHery: ZUUU ms71mV AddirLt		
CloseCom C more setting Show line and Facke Uverline: [20 ms [No] i bytes Aad verlig: [none RTS DIR Baudkat 115200 Intellegatistic Add verlig: [11520] Intellegatistic Add verlig: [20		

5. BLE client discovery services and service features

1. Click the UnKnown Service of UUID: 0xA002 in the mobile nRF debugging assistant client, as shown below:

10:35 🤤 🖬	@ 3 <u>0</u> ⊧ : <u>*</u>	10
	DISCONNECT	1
BONDED ADVERTISER	AITHINKER_BL602 7C:B9:4C:1D:C4:BC	×
CONNECTED CLIEN	IT SERVER	:
UUID: 0x1801 PRIMARY SERVICE		
Generic Access UUID: 0x1800 PRIMARY SERVICE		
Unknown Service UUID: 0xA002 PRIMARY SERVICE		
Unknown Characteristic UUID: 0xC300 Properties: READ		+
Descriptors: Characteristic User Description UUID: 0x2901	<u>+</u>	1
Unknown Characteristic UUID: 0xC301 Properties: READ		+
Descriptors: Characteristic User Description UUID: 0x2901	<u>+</u>	1
Unknown Characteristic UUID: 0xC302 Properties: WRITE		<u>↑</u>
Characteristic User Description	<u>+</u>	<u>+</u>
Unknown Characteristic UUID: 0xC303 Properties: WRITE NO RESPONS		<u>+</u>
Descriptors: Characteristic User Description	-	

At this point, in the next level option of the UUID: 0xA002, click the right button of the service feature where Properties is NOTIFY or INDICATE (where ESP-AT default Properties is NOTIFY or INDICATE is 0xC305 and 0xC306), Start listening for service features of Propertie is NOTIFY or INDICATE, as shown below,

10:37 🗢 🖪			⊚ 3∐8 ≑	2 🔒
≡ Devices			DISCONNECT	:
BONDED	ADVERTISER	AITH 7C:B	HNKER_BL602 9:4C:1D:C4:BC	² ×
CONNECTED NOT BONDED	CLIE	NT	SERVER	:
Unknown Char UUID: 0xC303 Properties: WRIT	racteristic TE NO RESPON	SE		<u>+</u>
Characteristic Us UUID: 0x2901	ser Description		+	<u>+</u>
Unknown Char UUID: 0xC304 Properties: WRIT	racteristic E			1
Unknown Char UUID: 0xC305 Properties: NOTI		<u>+++</u>		
Client Characteri UUID: 0x2902		+		
Unknown Characteristic UUID: 0xC306 Properties: INDICATE				
Descriptors: Client Characteristic Configuration UUID: 0x2902				
Unknown Characteristic UUID: 0xC307 Properties: READ				
Descriptors: Characteristic Us UUID: 0x2901	ser Description		+	<u>+</u>
Unknown Service UUID: 0xA003 PRIMARY SERVICE				

6. BLE server configuration and enables BLE APP

1. Select characteristic that is supporting notify or indicate as the write channel to send data, and select characteristic supporting writing operation as the read channel to receive data. The instruction is:

AT+BLESPPCFG=1, 1, 7, 1, 5

AT+BLESPP

As show below:

10:40 🗢 🖬 🛛 🚳 🕕 📬	🚯 SSCOM V5.12 Serial/Net data debugger,Author:XiXiaoMeng(Tintin),2618058@qq.com — 🗆 🗙
	PORT COM_Settings Display Send_Data Multi_Strings Tools Help repay_author PCB_proofing
	AT +BLGATTSSRV.RE
BONDED ADVERTISER AITHINKER_BL602 ×	AA +BLOATISSINGTART
CONNECTED CLIENT SERVER	Ar #ELENDE? #ELENDE? 08 AF #ELENDE?===================================
Unknown Characteristic UUID: 0x0303 Properties: WRITE NO RESPONSE Descriptions: Characteristic User Description UUID: 0x2901	US EUEDODHIG ("Tw.11-0r.4r.dr 16") *EECODHINAMI (0, 0, 6, 0, 300 *EECODHINAMI (0, 0, 360, 050) *EECODHINAMI (0, 0, 400, 0, 560) *EECOHINAMI (0, 0, 400, 0, 560) *EECOHINAMI (0, 0, 400, 0, 560) *EECOHINAMI (0, 0, 400, 0, 10) *EECOHINAMI (0, 0, 400, 0, 10) *EECOHINAMI (0, 0, 0, 0, 0, 0, 0, 0)
Unknown Characteristic UUI:: 0x334 Properties: WRITE Unknown Characteristic UUI:: 0x335 Properties: NOTFY Descriptors: Client Characteristic Configuration UUI:: 0x292 Value: Notifications enabled Unknown Characteristic	00 11 12 12 12 12 12 12 12 12 12
UUID: 0xC306 Properties: INDICATE Descriptors: Client Characteristic Configuration UUID: 0x2802 Unknown Characteristic UUID: 0xC307 UUID: 0xC307 Horgeneties: READ Descriptors: Characteristic User Description	• IEEXTSTORM: 'day '2.2.0 condition: * TEXEST * Texestand: * Constrained: * Constraine: * Constraine:
	CloseCom The Setting Show Time and Packs OverTime: 20 mm [No]1 Bytex Add Verify: [None This DTR Baudhat [11520 This Content of the Setting of the Set

10:54 🤿 🖬 🧖) :[]: :12 📋	🚯 SSCOM V5.12 Serial/Net data debugger,Author:XiXiaoMeng(Tintin),2618058@qq.com
E Devices DISCON		PORT COM_Settings Display Send_Data Multi_Strings Tools Help repay_author PCB_proofing AT+BLOGATISCHARY
BONDED ADVERTISER AITHINKER 7C:89:40:1D	BL602 ×	*#LEGATISCHAR _ char _ 1. 1. bc.200, bc00 HELGATISCHAR _ char _ 1. 2. 0. bc201, bc00 *HELGATISCHAR _ char _ 1. 2. 0. bc201 *HELGATISCHAR _ dec _ 1. 2. 1. bc2201 HELGATISCHAR _ dec _ 1. 2. 1. bc2201 HELGATISCHAR _ dec _ 1. 2. 1. bc2201
CONNECTED CLIENT SERV	/ER :	*BLGATISCHAE. desc., 1, 3, 1, 0:2001 *BLGATISCHAE. desc., 1, 4, 10:2001 *BLGATISCHAE. desc., 1, 4, 10:2001 *BLGATISCHAE. desc., 1, 6, 0:2004, 0:00 *BLGATISCHAE. desc., 1, 6, 0:2005, 0:00 *BLGATISCHAE. desc., 1, 6, 0:2020
Unknown Characteristic UIID: 0x0303 Properties: WRITE NO RESPONSE Descriptor: Characteristic User Description UIID: 0x2901	<u>+</u> <u>+</u> <u>+</u>	*BLEGATISCHAE."else", 1, 7, 0:0:0306,0:00 *BLEGATISCHAE."else", 1, 7, 0:0:0202 *BLEGATISCHAE."else", 1, 0; 0:0:0202 *BLEGATISCHAE."else", 1, 0; 0:0:0203 *BLEGATISCHAE."else", 2, 0:0:000,0:00 *BLEGATISCHAE."else", 2, 0:0:001,0:00 *BLEGATISCHAE."else", 2, 0:0:001,0:00 *BLEGATISCHAE."else", 2, 0:0:001,0:00 *BLEGATISCHAE."else", 2, 0:0:001,0:00
Unknown Characteristic App send d UUID: 0xC304 Properties: WRITE Value: (0x) ^{42-4C-36-30-32, *BL602*}	ata 土	Ar #USEFFCF0-1, 1, 7, 1, 5 Ar #USEFFC0-1, 1, 7, 1, 5 Ar #USEFFC0-1, 1, 7, 1, 5 PRL602
Unknown Characteristic UUID: 0xC305 Properties: NOTIFY Descriptors:	漤	
Client Characteristic Configuration UUID: 0x2902 Value: Notifications enabled	+	
Unknown Characteristic App receive UUID: 0xC306 Properties: INDICATE Value: (0x] 61-69-74-68-69-6E-6B-65-72, *aith	data ∕∕⁄	Send data
Descriptors: Client Characteristic Configuration UUID: 0x2902 Value: Indications enabled	+	ClearDate OpenFile H. M. bin SendFile Ston ClearSend Dates Freich Swedenfid FIT -
Unknown Characteristic UUID: 0xC307 Properties: READ	<u>+</u>	ComWum COMF USB-SERIAL CH340 HERShow SavaData BeesivedToFile Senders Senders None Address Add