GhostBuster Bluetooth Test Board Operation Guide

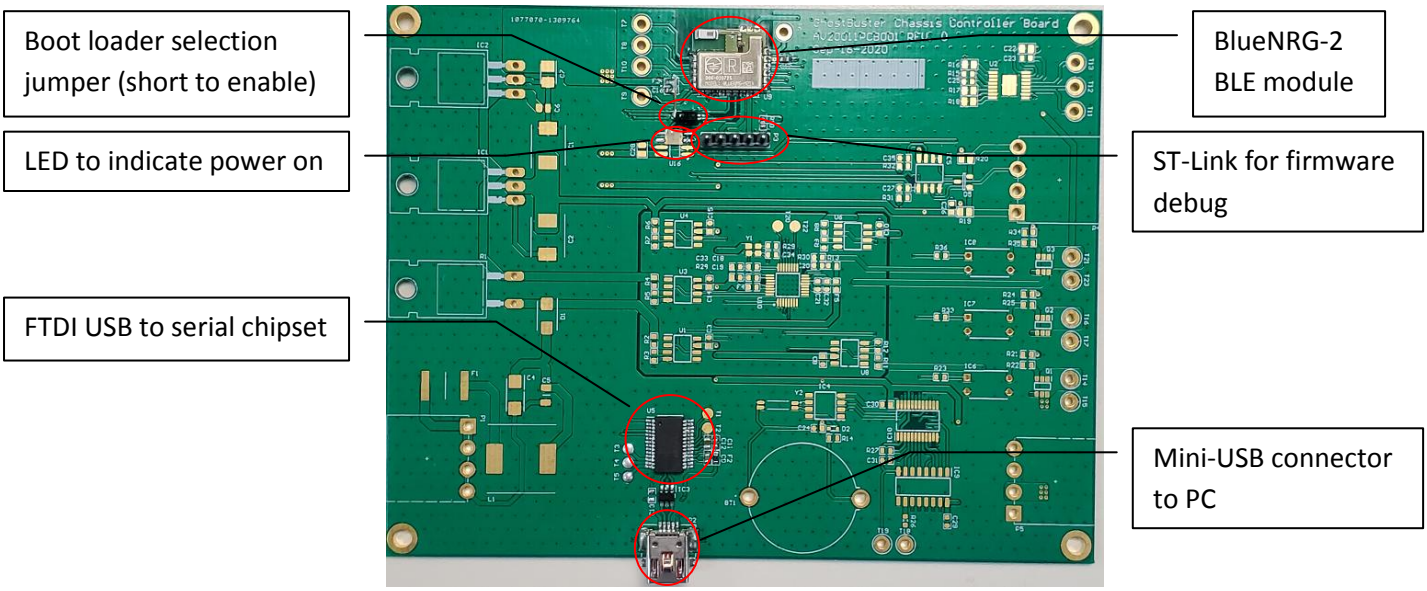
Last Update: Oct-20-2020
Prepared by: WP Shum

This document described the GhostBuster BLE SW Development Platform for mobile application development. The firmware of the Development Platform is still under development and only partial of the function have been implemented.

These equipments are used:
1. Bluetooth Test Board, built base on GhostBuster Chassis Controller Board AV2011PCB001 Rev.0
2. USB Type-A to Mini-USB cable

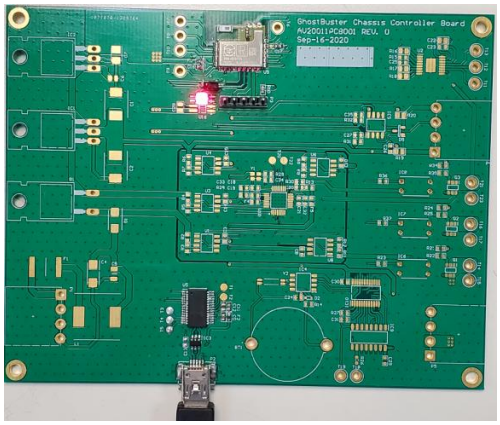
These software are used:
1. Putty, or similar Hyper Terminal program
2. BlueNRG-1_2 Flasher
3. BLE SPP mobile app

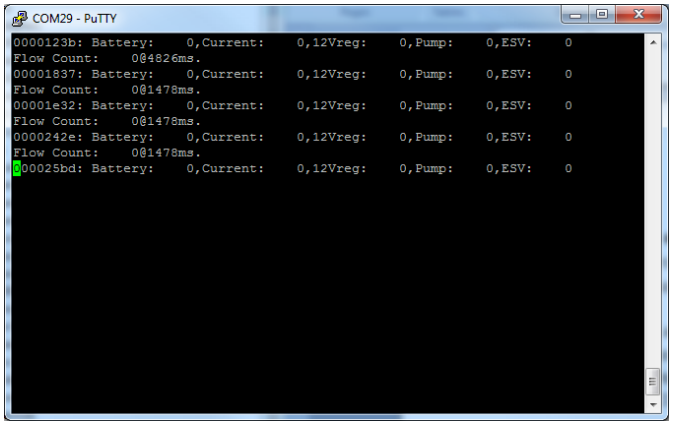
Section 1 – Hardware Description



Section 2 – Hardware and Driver installation

1.) Connect the Controller Board to PC via a mini-USB cable.
2.) The LED will light up to indicate the Controller Board is powered up.
3.) The driver of USB to Serial port will be automatically installed.
4.) Check the corresponding COM port from Device Manager.
5.) Set and open the correct COM port with 115200 bps Baud rate by Putty





Section 3 – BLE information

1.) BLE Device Address: 00:08:E1:00:00:AA
2.) BLE Device Name: GhostBuster_V1
3.) Service UUID: D973F2E0-B19E-11E2-9E96-0800200C9A66
4.) Read Characteristic UUID: D973F2E1-B19E-11E2-9E96-0800200C9A66
5.) Write Characteristic UUID: D973F2E2-B19E-11E2-9E96-0800200C9A66

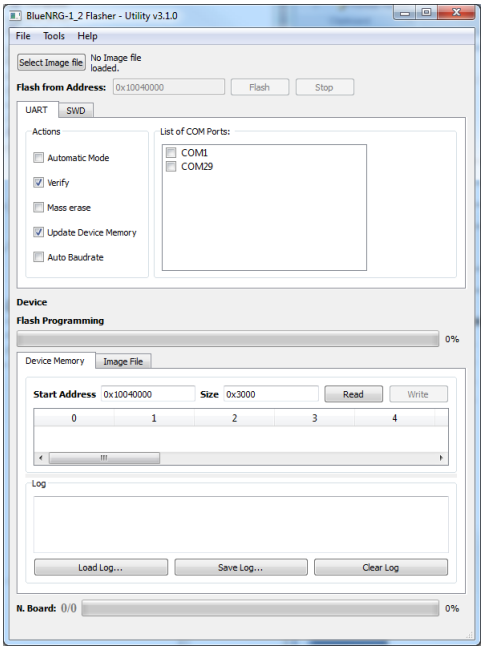
Section 4 – Firmware command list

The below table show the available commands for communication through the Bluetooth.

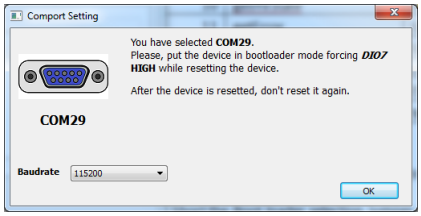
Command number	Received command	Response	Action
0	Invalid command	Null	Null
1	getSerial	S/N 0000001\r	Null
2	getModel	V2020-SEP\r	Null
3	getTotalTime	Under Development\r	Null
4	getTotalVolume	Under Development\r	Null
5	getFirmware	Under Development\r	Null
6	updateFirmware	Under Development\r	Null
7	sprayDisable	Null	Disable water pump
8	sprayEnable	Null	Enable water pump
9	getPumpState	Water Pump is on.\n\r Water Pump is off.\n\r	Null
10	getHVState	Under Development\r	Null
11	getError	Under Development\r	Null
12	getFlow	Under Development\r	Null
13	getESV	ESV is enable.\n\r ESV is disable.\n\r	Null
14	getBatteryLevel	Null	Null

Section 5 – Firmware update

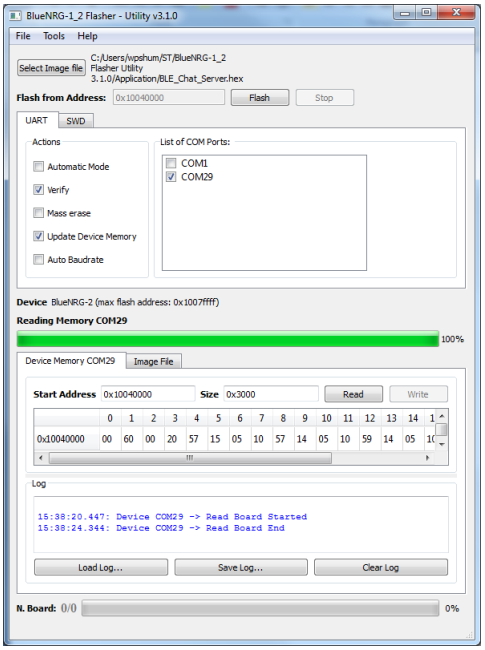
1. Install the BlueNRG Flasher Utility(https://www.st.com/en/embedded-software/stsw-bnrgflasher.html).
2. Unplug the USB cable.
3. Short the boot loader selection jumper.
4. Plug in the USB cable.
5. The Flasher will detect all available COM port.
6. Select the corresponding COM port.



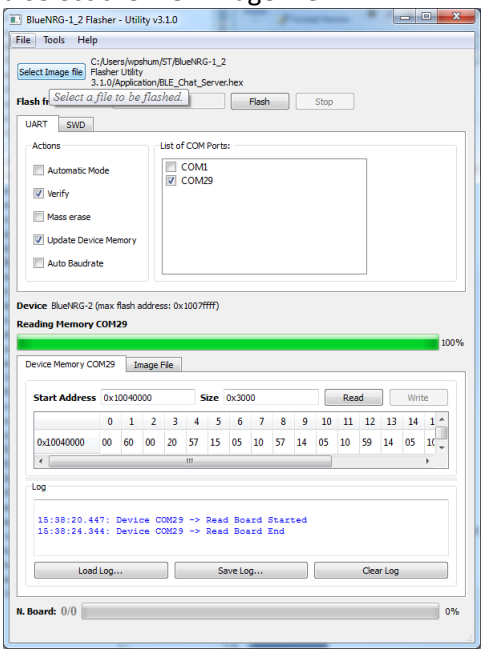
7. Set the Baudrate to 115200 and click OK.



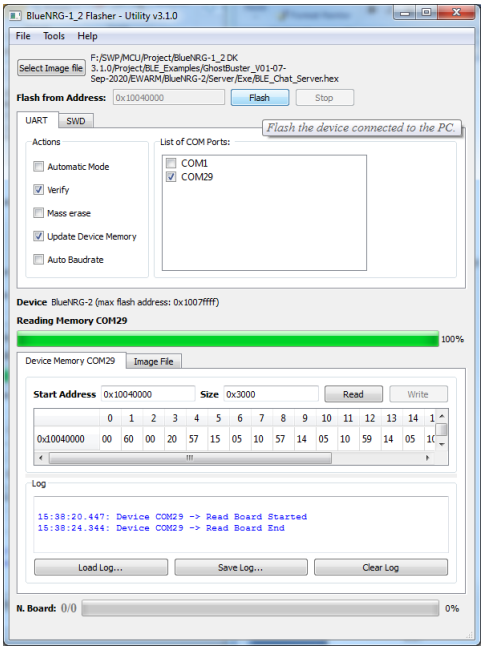
8. The Flasher read the Board automatically.



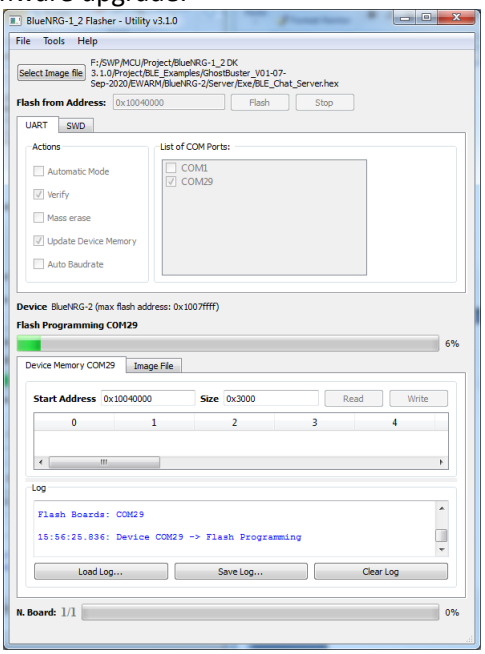
9. Click the “Select Image file” and select the .hex image file.



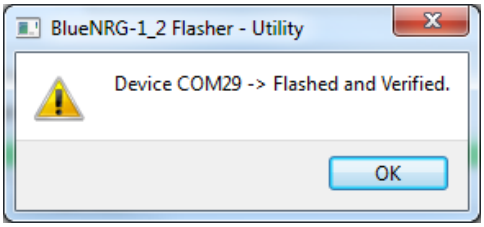
10. Click “Flash” to download the firmware to the board.

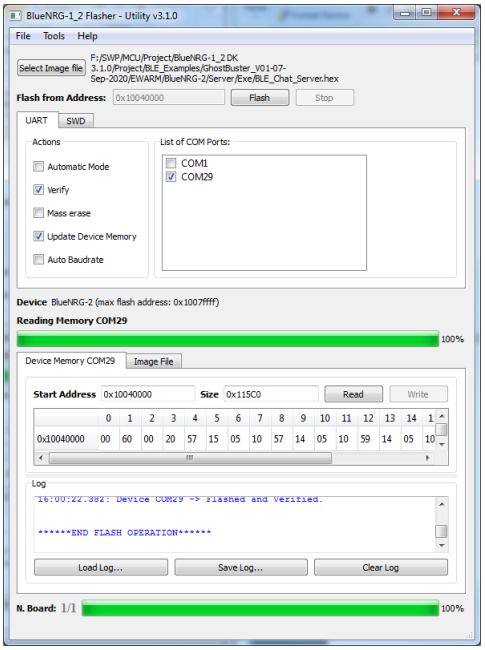


11. Wait a few minutes for the firmware upgrade.



12. Click OK to Complete.

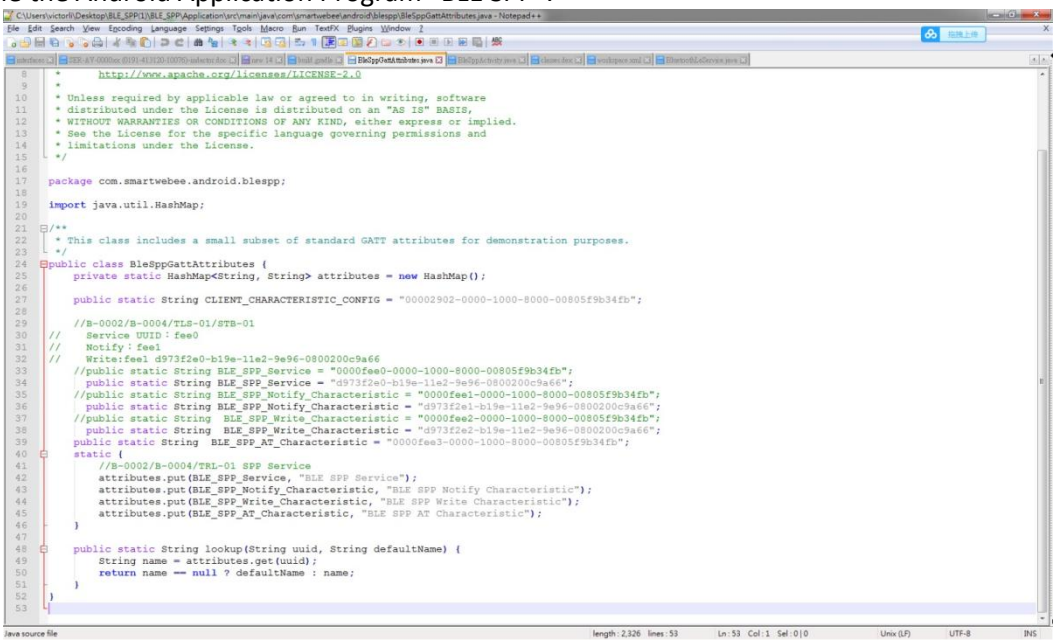




13. Exit the Flasher program.
14. Unplug the USB cable.
15. Open the Boot loader selection jumper.
16. Plug in the USB cable, the board will power on with running the new firmware.

Section 6 – Android Application Example

1. Compile the Android Application Program “BLE SPP”.



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 * limitations under the License.
 */

package com.smartwebee.android.blespp;

import java.util.HashMap;

/**
 * This class includes a small subset of standard GATT attributes for demonstration purposes.
 */
public class BleSppGattAttributes {
    private static HashMap<String, String> attributes = new HashMap();

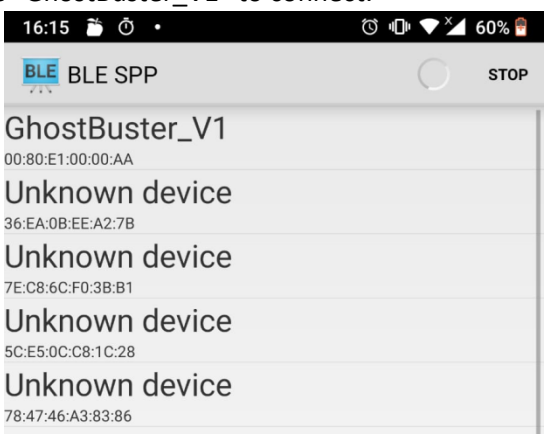
    public static String CLIENT_CHARACTERISTIC_CONFIG = "00002902-0000-1000-8000-00805f9b34fb";

    //B-0002/B-0004/TLS-01/STB-01
//    Service UUID : fee0
//    Notify : fee1
//    Write:fee1 d973f2e0-b19e-11e2-9e96-0800200c9a66
    //public static String BLE_SPP_Service = "0000fee0-0000-1000-8000-00805f9b34fb";
     public static String BLE_SPP_Service = "d973f2e0-b19e-11e2-9e96-0800200c9a66";
    //public static String BLE_SPP_Notify_Characteristic = "0000fee1-0000-1000-8000-00805f9b34fb";
     public static String BLE_SPP_Notify_Characteristic = "d973f2e1-b19e-11e2-9e96-0800200c9a66";
    //public static String  BLE_SPP_Write_Characteristic = "0000fee2-0000-1000-8000-00805f9b34fb";
     public static String  BLE_SPP_Write_Characteristic = "d973f2e2-b19e-11e2-9e96-0800200c9a66";
    public static String  BLE_SPP_AT_Characteristic = "0000fee3-0000-1000-8000-00805f9b34fb";
    static {
        //B-0002/B-0004/TRL-01 SPP Service
        attributes.put(BLE_SPP_Service, "BLE SPP Service");
        attributes.put(BLE_SPP_Notify_Characteristic, "BLE SPP Notify Characteristic");
        attributes.put(BLE_SPP_Write_Characteristic, "BLE SPP Write Characteristic");
        attributes.put(BLE_SPP_AT_Characteristic, "BLE SPP AT Characteristic");
    }

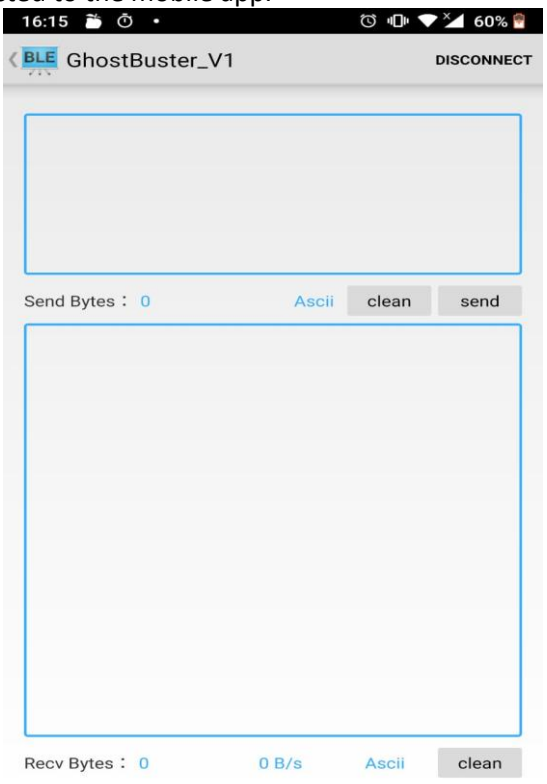
    public static String lookup(String uuid, String defaultName) {
        String name = attributes.get(uuid);
        return name == null ? defaultName : name;
    }
}
```

2. Install and run the “BLE SPP”

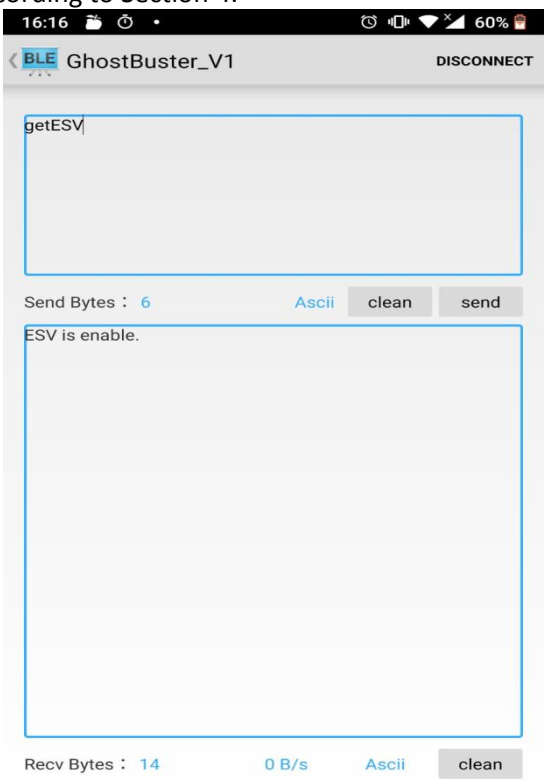
3. Search the Bluetooth device “GhostBuster_V1” to connect.



4. “GhostBuster_V1” is connected to the mobile app.



5. The command can be sent according to Section 4.



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