Bluetooth Communication Protocol

1. Pick UUID Glove:
    i. Online generator: `837ee2f0-d412-4af9-b847-c5ffd223640f`
2. Control commands (from app to glove)
    i. Used by the Android app to send commands to the glove, like starting an exercise or setting resistance.
3. Response commands (from glove to app)
    i. Used by the glove to send data back to the app, like sensor readings.
    ii. We need sensor data + ACK.
    iii. Warnings:
        i. To send warnings to the glove. The app will show a dialog about the warning type and the glove will be set to Stop exercise.
        ii. Glove send 2 bytes (1 byte for warning and the other for the type of warning)
        iii. 0x01: Emergency Stop Activated
        iv. 0x02: Motor Failure
        v. 0x04: if needed we can add a third warning
4. Communication flow:
    i. From Android to Glove: The app writes a command to the Control. For example, to set the resistance to level 3, it writes opcode for setting resistance.
    ii. From Glove to Android: The glove notifies the Android app via the Response with sensor data or acknowledgments. If sending a sensor value of 120, it might notify with 0x81, <value>.

Example:

1. Setting Resistance:
    a. Android writes 0x0205 to Control Commands to set resistance to level 5.
2. Android App Sends Command to Start Exercise:
    a. Writes to Control Commands: EX: 0x01 (start command).
3. Glove Acknowledges and Starts Exercise:
    a. writes 0x82 (ACK) to Acknowledge.
    b. Begins the exercise.
4. Glove Sends Sensor Data:
    a. Glove notifies the Response Commands with 0x81<sensor_value> periodically, allowing the Android app to track the user's performance.

Opcodes

Empty	Empty	C	S	W	EMPTY	EMPTY	SR	ST	SE

SE: 0: power down mode, 1: start exercise (if connected 001000 0001 -> 0x81)

ST: 0: power down mode - no effect, 1: stop exercise (if connected 001000 0010 -> 0x82)

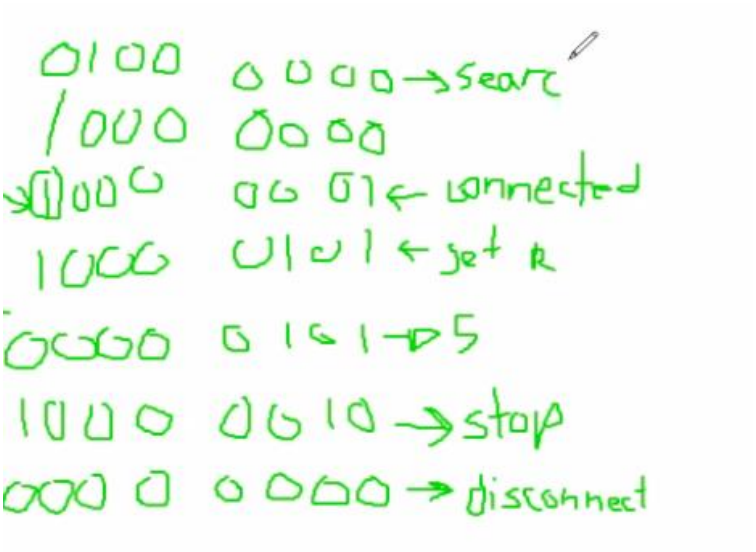
SR: 0: power down mode, 1: setting resistance + value (10 bits) = 2 bytes for SR (001000 0101 -> 0x85, value (0xvalue)

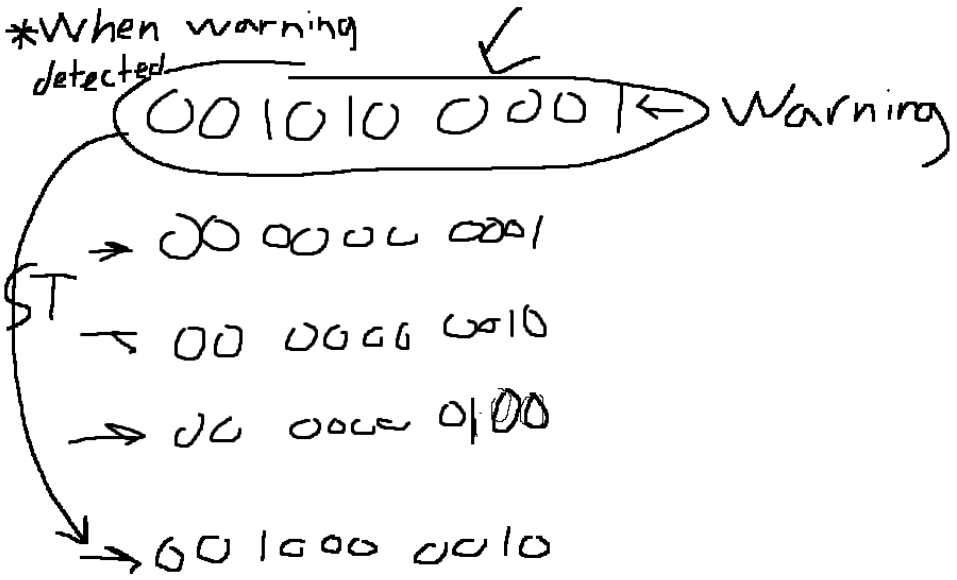
S: 0: power mode down, 1: searching for Bluetooth devices (000100 0000 -> 0x40)

W: 0: no warning detected, 1: warning is detected (001010 0001, 0xA1), (0xvalue)

C: 1 connected device (if connected, 0x80)

Default value: 001000 0000 iff connected (0x80)




*When warning detected
Warning
ST