

# **Bluetooth BLE Mobile Applications (iOS and Android)**

## Bluetooth BLE Mobile Applications (iOS and Android)

### The First Window of the App.

1: The first window that appears when the user opens the mobile application should be a window that lists all the BLE devices available in the area.

2: When the user presses any item of the list (i.e. any BLE device on the list), the mobile application should connect to this BLE device and then go to a new window (which is the main window of this application). The new main window is shown in the next slide.

3: In the first window, there should be also a button that is called “Name a Device”.

4: When this button is pressed by the user, it will give the user the ability to rename the known BLE device so that the new name is saved in the application’s memory and will be shown in the list whenever the user opens the application.

Name a Device

List of BLE Devices:

1: .....

2: .....

3: .....

4: .....

5: .....

6: .....

7: .....

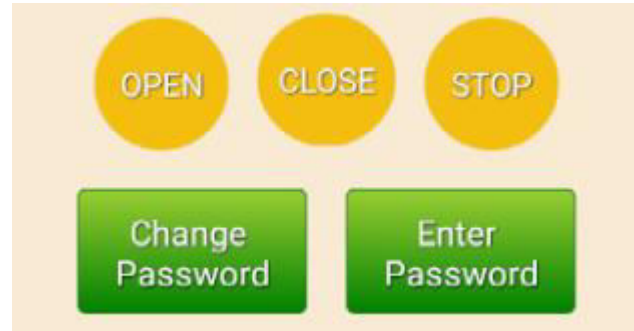
8: .....

9: .....

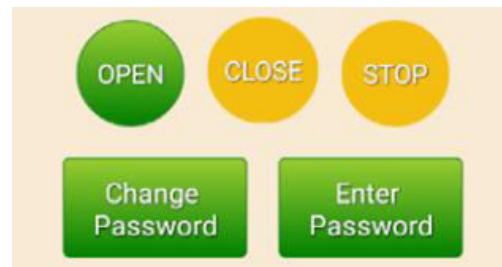
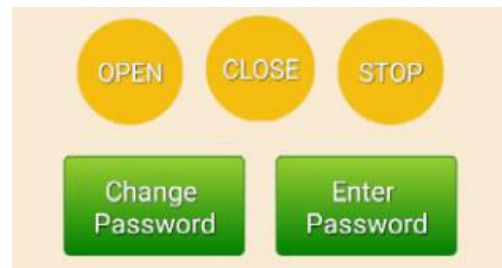
## Bluetooth BLE Mobile Applications (iOS and Android)

### The Second Window of the App.

1: The second window is the main window of the application. It should look as shown below. It has five buttons: “OPEN”, “CLOSE”, “STOP”, “Change Password”, and “Enter Password”.



2: When the “OPEN”, “CLOSE”, or “STOP” button is pressed, the byte corresponding to this button will have the value of ‘E’, and the bytes corresponding to the other two buttons will have the value of 0. The background of these button will change as follows:



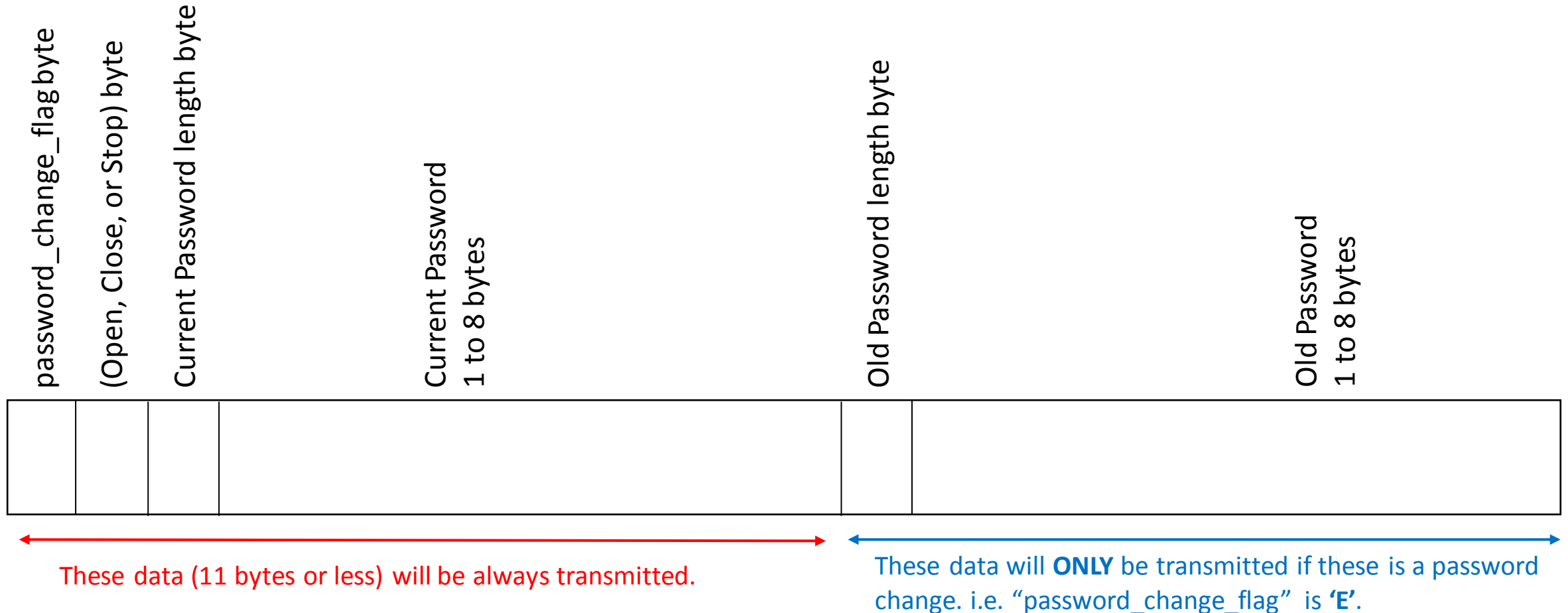
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### The Second Window of the App.

3: When the “OPEN”, “CLOSE”, or “STOP” button is pressed, the mobile application should transmit 20 bytes or less to the BLE device connected to.

4: The length of the transmitted data will depend on the length of the password/passwords.

5: The data to be sent are as follows:



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6: The “password\_change\_flag byte” will have the value of ‘E’ if the user presses the “Change Password” button and successfully changes the password by pressing the “Finish” button. This step is illustrated in the following slides. The “password\_change\_flag byte” will have the value of ‘0’ if the user doesn’t press the “Change Password” button. It will also have the value of ‘0’ if the user hasn’t successfully finished the password change or has canceled the password change by pressing the “Cancel” button. This will be illustrated more in the following slides.

7: The “(Open, Close, or Stop) byte” will have one of the following “hex” values depending on the status of the “OPEN”, “CLOSE”, and “STOP” buttons:

- 0x0B if the value of the “OPEN” button is ‘E’, and the values of the other two buttons are ‘0’.

- 0x0E if the value of the “CLOSE” button is ‘E’, and the values of the other two buttons are ‘0’.

- 0x0F if the value of the “STOP” button is ‘E’, and the values of the other two buttons are ‘0’.

- 0x10 if the values of all buttons are ‘0’.

8: The “Current Password length byte” will have the “ascii” value corresponding to the length of the current password.

9: The “Current Password” bytes will be 1 to 8 bytes which include the current password. This current password should be saved in the application’s memory so that the user doesn’t have to type it every time they open the application.

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10: The “Old Password length byte” will have the “ascii” value corresponding to the length of the old password.

11: The “Old Password” bytes will be 1 to 8 bytes which include the old password. This old password should not be saved in the application’s memory.

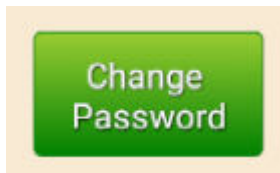
12. All bytes mentioned early in points 6 to 9 will always be transmitted when the user press the “OPEN”, “CLOSE”, or “STOP” button. If there’s a password change (i.e. “password\_change\_flag byte” is ‘E’), the “Old Password” bytes and the “Old Password length” byte will also have to be transmitted when the user press the “OPEN”, “CLOSE”, or “STOP” button.

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13: When “Change Password” button is pressed, a new window will pop up. In this window, the user has to type the old password, and the new password which has to be entered twice.

14: The user can cancel the password change operation by clicking the “Cancel” button. If the “Cancel button is pressed”, the “password\_change\_flag byte” will have the value of ‘0’. On the other hand, if the user has successfully changed the password, the “password\_change\_flag byte” will have the value of ‘E’.



Please click "Finish" to save the new password, or click "Cancel" to exit without changing the old password!

**Old Password:**

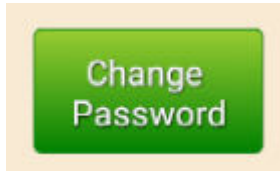
**New Password:**

**Confirm New Password:**

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### The Second Window of the App.

15: If the user presses the “Finish” button without typing one password (or all passwords), a new message will pop up to remind the user to type all passwords in order to be able to successfully finish the password change operation.



Please click "Finish" to save the new password, or click "Cancel" to exit without changing the old password!

**Old Password:**

**New Password:**

**Confirm New Password:**

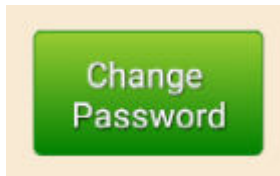
Please enter all passwords or click "Cancel" to exit!



## Bluetooth BLE Mobile Applications (iOS and Android)

### The Second Window of the App.

16: The length of all typed passwords should be less than 9 characters. If the length of any typed password is greater than 8 characters, a message will pop up when the user presses the “Finish” button to remind the user to enter a correct password that has less than 9 characters in order to be able to finish the password change operation.



Please click "Finish" to save the new password,  
or click "Cancel" to exit without changing the old  
password!

Old Password:  
.....

New Password:  
.....

Confirm New Password:  
.....

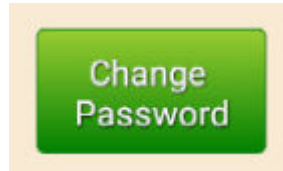
Finish Cancel

The length of each password MUST be  
less than 9 letters!

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### The Second Window of the App.

17: The new password has to be entered twice to make sure that the user has typed the correct password. Otherwise, a message will pop up when the user presses the “Finish” button to remind the user to enter the same password.



Please click "Finish" to save the new password,  
or click "Cancel" to exit without changing the old  
password!

Old Password:  
.....

New Password:  
.....

Confirm New Password:  
.....

Finish Cancel

The new passwords MUST match each  
other!

## Bluetooth BLE Mobile Applications (iOS and Android)

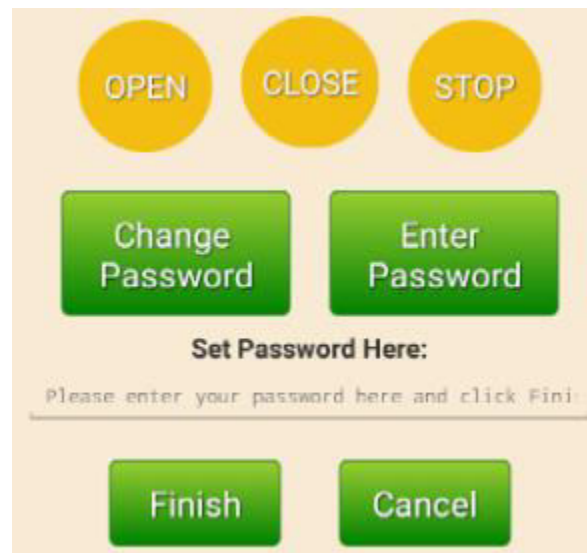
### The Second Window of the App.

18: When “Enter Password” button is pressed, a hidden small window will show up. In this small window, the user has to type the current password, and then press either “Finish” button or “Cancel” button.

19: If the “Cancel” button is pressed, the small window will be hidden again without the current password will hold the same password that’s already saved in the application’s memory.

20. If the user has typed a password, and presses the “Finish” button, the typed password will be saved in the application’s memory so that the user doesn’t have to type it every time they open the application.

21. Please note that the “password\_change\_flag byte” will have the value of ‘0’ whenever the user presses the “Enter Password” even if the user has successfully finished the “Enter Password” operation.



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### The Second Window of the App.

22: If the user presses the “Finish” button without typing any password, a message will show up to remind the user to type the password or press “Cancel” to exit the “Enter Password” operation.

