```
  openTime = millis();  // set even if bad code so we can reset the lights

  // does the code match the secret?
  boolean match = false;

  if (strlen(secret) == codeLength) {
    for (int i = 0; i < codeLength; i++) {
      if (secret[i] != code[i]) {
        match = false;
        break;
      } else {
        match = true;
      }
    }
  }

  if (match) {
    // open the lock
    Serial.println("Code matches, opening lock");
    digitalWrite(GREEN_LED_PIN, HIGH);
    digitalWrite(RED_LED_PIN, LOW);
    digitalWrite(LOCK_PIN, HIGH); // open the lock
    statusCharacteristic.setValue("unlocked");
  } else {
    // bad code, don't open
    Serial.println("Invalid code");
    digitalWrite(RED_LED_PIN, HIGH);
    statusCharacteristic.setValue("invalid code");
  }
}

// closes the lock and resets the lights
void resetLock() {
  // reset the lights
  digitalWrite(RED_LED_PIN, LOW);
  digitalWrite(GREEN_LED_PIN, LOW);
  digitalWrite(LOCK_PIN, LOW); // close the lock
  statusCharacteristic.setValue("locked");
  openTime = 0;
}
```

## Testing the Lock

Now that the hardware has been built and programmed, you can use a generic Bluetooth application to test the service. Use LightBlue (*http://bit.ly/1hq3m9j*) if you have an iPhone, iPad or iPod. Use nRF Master Control Panel (*http://bit.ly/1Sb9ySu*) if you have an Android device.

### iOS

On iOS, use the LightBlue application to connect to the lock (Figure 4-4).





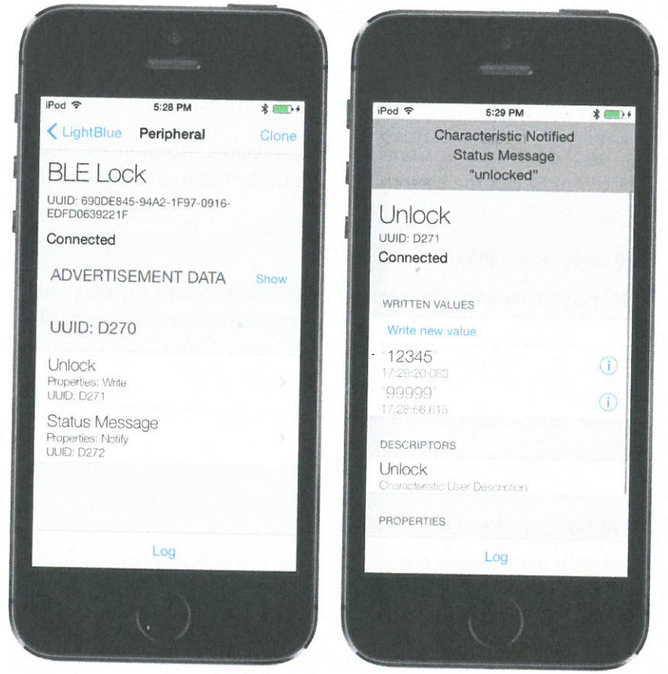


**Figure 4-4** *Left: LightBlue connected to the Lock Service; right: LightBlue opening the lock*

1. Select the Status Message characteristic. LightBlue defaults to Hex for displaying characteristic data.
2. Switch the view from Hex to String by selecting Hex from the top-right corner of the screen.
3. Choose UTF-8 String from the list.
4. After the application navigates back to the characteristic view, select the "listen for notifications" link.
5. Use the link on the top-left to navigate back to the peripheral view.
6. Choose the Unlock characteristic. Follow the same process to switch from Hex to String.
7. Touch Hex link on the top-right.
8. Choose UTF-8 String. Now you are ready to open the lock.

9. Touch "Write new value", enter **12345** into the form, and press Done.
10. If you entered the correct code, the lock will open and LightBlue will receive the status notification (Figure 4-4).

## Android

Android users should use the nRF Master Control Panel to connect to the lock. The lock service has the 16-bit UUID D270, but the application will display this as the expanded 128-bit version.

1. Choose 0000-**d270**-0000-1000-8000-00805f9b34fb.
2. Subscribe to the Message characteristic by pressing the button with the down arrows next to UUID 0000-**d272**-0000-1000-8000-00805f9b34fb. Now you are ready to send the unlock code to the lock.
3. Click the up arrow next to the Unlock characteristic 0000-**d271**-0000-1000-8000-00805f9b34fb. A new screen will pop up allowing you to write a value.
4. Enter **12345** as the value.
5. Change the BYTE ARRAY drop-down to TEXT.
6. Press the Send button. If you entered the correct code, the lock will open and the nRF Master Control Panel will receive the status notification. Note that the bytes (0x)75-6E-6C-6F-63-6B-65-64 are also displayed as the string "unlocked" (Figure 4-5).