A product development of smart bedside lamp based on BLE

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Goal

- Goals:
  1. Connect the smart lamp and smartphone via BLE.
  2. Change the luminance of lamp by operation on phone application.
  3. Set alarm or timer on smartphone application to turn the lamp on or off at set time.

Methodology

- Step 1: Build the program for BLE Mini
- Step 2: Build the program for Arduino
- Step 3: Build Android Application to control the hardware
- Step 4: Assemble the component together

Motivations and Objectives

- Motivations:
  - A: At morning or at night, people want light automatically turn on or turn off without approaching to the switch.
  - B: People need a dim light when playing the smartphone before sleep.

- Objectives:
  - A: Change the luminance to make eyes comfortable.
  - B: Set a clock to automatically turn on or turn off.

Research Challenges

- Challenge 1: Make BLE model output PWM signal to change luminance of LED.
- Challenge 2: Learn BLE and connect BLE devices and smartphones.
- Challenge 3: Android application debug.

Results

- Results:
  - Result 1: There is a switch in APP, you can turn on or turn off the LED as you want.
  - Result 2: There is a slider to change the luminance to have a most comfortable sense.
  - Result 3: The alarm button is used to set a clock to automatically turn on the LED. The sleep button is used to gradually turn off the LED to help you fall asleep.

Suggestion: The LED should be used with the APP which connected by Bluetooth to have a better control.

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References