



Wireless Home Audio and Lighting System *Sponsored by SONOS*

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A relatively new development in the field of home audio is the concept of the light bulb speaker. This allows users to stream audio wirelessly to devices that fit into light sockets, remaining out of the way. However, these devices often suffer from poor sound quality and weak lighting.

The BULB system, shown in Figure 1, places the high-quality sound of the Sonos Play:1 into a device that fits into a 6-inch recessed ceiling socket. The BULB device will be able to produce sound loudly and clearly, while also being usable for home lighting, helping it to integrate seamlessly into a domestic environment. The device is completely controlled via a smart device using a user-friendly app, allowing users to select and control music and control the brightness and color of the LED lighting. The lighting will involve individually dimmable red, green, and blue (RGB), and white LEDs, allowing users to select from nearly any color in the spectrum.

To achieve these goals, the electronics and transducers from the Play:1 have been placed into an enclosure along with a separate lighting control system that includes a microprocessor, Bluetooth module, and LED driver circuit. Users will send control commands to the device using an Android app, whose interface is shown in Figure 2. These controls will change volume, pause and play music via Wi-Fi, and change the brightness and color of the lights via Bluetooth.

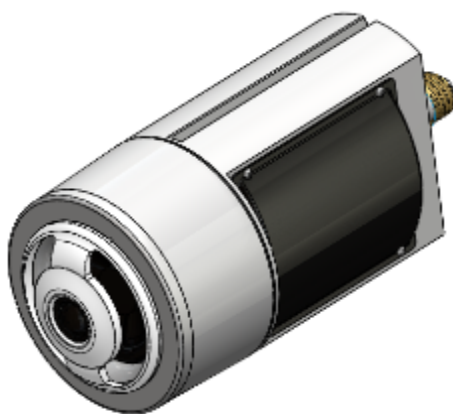


Figure 1: The BULB system

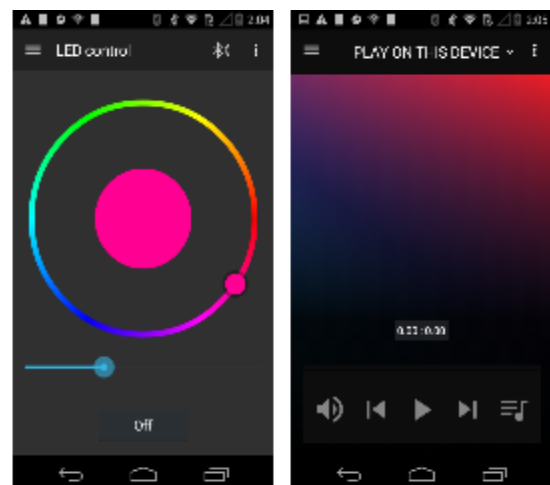


Figure 2: Screenshots from BULB app