

Technical Disclosure Commons

Defensive Publications Series

December 2019

Quick and convenient establishment of wireless communication

Feng-Jui Kuo

Follow this and additional works at: https://www.tdcommons.org/dpubs_series

Recommended Citation

Kuo, Feng-Jui, "Quick and convenient establishment of wireless communication", Technical Disclosure Commons, (December 10, 2019)

https://www.tdcommons.org/dpubs_series/2749



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

Quick and convenient establishment of wireless communication

ABSTRACT

Communication between paired Bluetooth devices is not always immediate. This is because there are often several devices in the vicinity that are paired with a user's device, and the user may need to go through a process of selecting one of the paired devices to route communications. This device selection procedure can be further complicated by the sometimes cryptic names assigned to the devices. Per the techniques of this disclosure, images of a Bluetooth accessory are captured at the time of pairing with a Bluetooth device. The user points a camera to the Bluetooth accessory to establish a communication path.

KEYWORDS

- Bluetooth pairing
- Bluetooth connection
- Bluetooth accessory
- Wireless pairing
- Device pairing
- Audio path
- QR code

BACKGROUND

Bluetooth pairing is not always a frictionless process. Sometimes a user has to make both devices discoverable, the two devices must detect each other, one of the two devices has to receive a connection request from the other, and the user has to enter a password that is exchanged between the two devices before communication can be established between the two devices. Even after pairing, communication between paired devices is not always immediate.

This is because there are often several devices in the vicinity that are paired with the user’s device, and the user sometimes needs to go through a process of selecting one of the paired devices to route communications. This device selection procedure can be further complicated by the sometimes cryptic names assigned to the devices.

Example: A user has paired their mobile device with their headphones and with their car audio system. The user enters the car with their headphones. The user wishes to switch the audio path for audio from the mobile device from their headphones to their car audio system. To do so, the user may have to navigate through the Bluetooth menu on their mobile device to manually switch the audio destination from the headphones to the car audio system.

DESCRIPTION

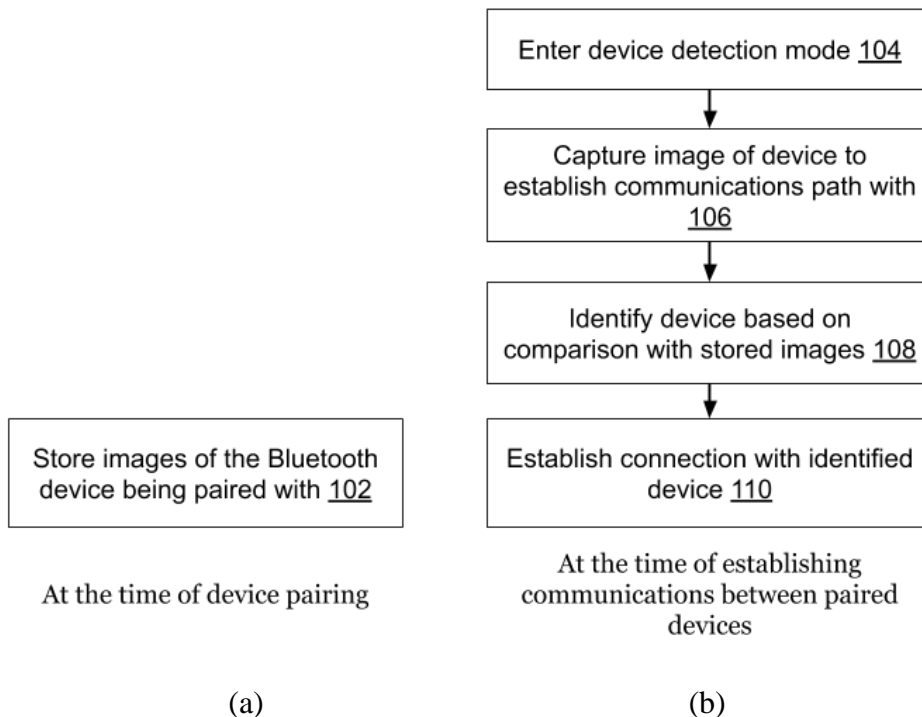


Fig. 1: (a) Creating a device fingerprint at the time of Bluetooth device pairing (b) Using the device fingerprint to establish a communications path between paired Bluetooth devices

Fig. 1 illustrates an example of the techniques of this disclosure for quick and convenient device pairing. At the time of device pairing, as illustrated in Fig. 1(a), images of the Bluetooth device being paired with are captured and stored (102). For example, at the time of pairing a mobile device with headphones, images of the headphones are captured and stored by the mobile device. As another example, the Bluetooth device being paired with may have a QR-code sticker affixed to it, an image of which is captured and stored at the time of device pairing. The captured images of the device are an identifier of the device.

At the time of establishing a communications path between paired devices, as illustrated in Fig. 1(b), one of the devices enters a device detection mode (104). For example, if one of the devices is a mobile device, it can be entered into a device detection mode by activating a device detection application. While in detection mode, an image of the device is captured (106), e.g., by the user. If one of the devices is a mobile device, the image can be captured, e.g., by double-clicking the power button to launch a camera application, by activating an option or function within the device detection mode, etc. The device with which communication is to be established is identified based on a comparison with stored images (108). Bluetooth communication is established with, or switched to, the identified device (110).

For devices that are relatively far apart, e.g., five meters or more, device detection can be based on a camera actively zooming into a QR code to identify the device. For devices that are relatively close to each other, device detection can be based on a comparison with stored images of the device. While the foregoing discussion refers to Bluetooth device pairing, the described techniques can be used for any wireless connection technology. For example, a mobile phone can connect to both - a Bluetooth speaker and a speaker available via a wireless LAN - using the techniques described herein

CONCLUSION

Per the techniques of this disclosure, images of a Bluetooth accessory are captured at the time of its pairing with a Bluetooth device. The user points a camera to the Bluetooth accessory to establish a communications path.

REFERENCES

1. Lee, Yun-woo. "Apparatus and method for connecting device through image recognition in mobile terminal." U.S. Patent Application 15/173,064, filed June 3, 2016.
2. Bateman, John, Oleg Ostap, Oliver Hoheisel, David Kim, and Vijay Karnataki. "Wireless video camera and connection methods including multiple video or audio streams." U.S. Patent Application 13/960,292, filed August 6, 2013.