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# (12) United States Patent

## Asakura

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#### (54) COMMUNICATION DEVICE

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(58) Field of Classification Search

#### (56) References Cited

#### U.S. PATENT DOCUMENTS

2009/0286483	A1*	11/2009	Kanemoto	H04L 63/0853
2014/0157386	A1*	6/2014	Tanaka	455/66.1 H04L 63/0428 726/7

2014/0168687 A1\* 6/2014 Kim ...... H04N 1/00342 358/1.14

2015/0029532 A1 1/2015 Lee et al. 2015/0092225 A1 4/2015 Kaigawa (Continued)

#### FOREIGN PATENT DOCUMENTS

JP 2010-198505 A 9/2010 JP 2015-069458 A 4/2015 (Continued)

#### OTHER PUBLICATIONS

2010 Wi-Fi Alliance, Wi-Fi Peer-to-Peer (P2P) Technical Specification Version 1.1.

U.S. Appl. No. 15/712,607, filed Sep. 22, 2017.

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#### (57) ABSTRACT

A communication device may receive a first signal including first identification information and attribute information from a target device via the wireless interface, determine which of a first type device or a second type device the target device is by using the attribute information, execute an authentication of the target device by using the first identification information in a case where it is determined that the target device is the first type device, and execute an authentication of the target device by using the second identification information in a case where it is determined that the target device is the second type device and a second signal including second identification information different from the first identification information is received via the wireless interface, the second signal is sent to the communication device from the second type device in accordance with a predetermined application software.

### 23 Claims, 8 Drawing Sheets

