



US 20240213814A1

(19) **United States**

(12) **Patent Application Publication**
MOON et al.

(10) **Pub. No.: US 2024/0213814 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **WIRELESS CHARGING SYSTEM, METHOD
OF REMOVING FOREIGN OBJECT IN
WIRELESS CHARGING SYSTEM, AND
COMPUTING DEVICE FOR PERFORMING
THE METHOD**

Publication Classification

(51) **Int. Cl.**
H02J 50/60 (2006.01)
H02J 50/10 (2006.01)
H02J 50/40 (2006.01)
(52) **U.S. Cl.**
CPC *H02J 50/60* (2016.02); *H02J 50/10*
(2016.02); *H02J 50/402* (2020.01)

(71) Applicant: **Electronics and Telecommunications
Research Institute, Daejeon (KR)**

(72) Inventors: **Jung Ick MOON, Daejeon (KR);
Gwangzeen KO, Daejeon (KR);
Sang-Won KIM, Daejeon (KR);
Seong-Min KIM, Daejeon (KR); In
Kui CHO, Daejeon (KR)**

(73) Assignee: **Electronics and Telecommunications
Research Institute, Daejeon (KR)**

(21) Appl. No.: **18/489,536**

(22) Filed: **Oct. 18, 2023**

(30) **Foreign Application Priority Data**

Dec. 22, 2022 (KR) 10-2022-0181988

(57) **ABSTRACT**

A wireless charging system, a method of removing a foreign object in the wireless charging system, and a computing device performing the method are provided. The wireless charging system includes a transmission coil cover mounted to surround a transmission coil of a transmission device, a reception coil cover mounted to surround a reception coil of a reception device, and a direct current (DC) conducting wire attached to each of the transmission coil cover and the reception coil cover, wherein the wireless charging system may be configured to remove a foreign object attached to the transmission coil cover or the reception coil cover by using a force acting on the DC conducting wire according to a direction of a current flowing in the DC conducting wire and a direction of a magnetic field perpendicular to the direction of the current.

