



US 20240214275A1

(19) **United States**

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

(10) **Pub. No.: US 2024/0214275 A1**

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

(54) **SYSTEMS AND METHODS TO FORM
REMOTE VEHICULAR MICRO CLOUDS**

Publication Classification

(71) Applicant: **TOYOTA MOTOR ENGINEERING
& MANUFACTURING NORTH
AMERICA, INC.**, Plano, TX (US)

(51) **Int. Cl.**
H04L 41/12 (2006.01)
G08G 1/01 (2006.01)
H04L 67/10 (2006.01)

(72) Inventors: **SEYHAN UCAR**, Mountain View, CA
(US); **Takamasa Higuchi**, Mountain
View, CA (US); **Onur Altintas**,
Mountain View, CA (US); **Kentaro
Oguchi**, Mountain View, CA (US)

(52) **U.S. Cl.**
CPC **H04L 41/12** (2013.01); **G08G 1/0112**
(2013.01); **H04L 67/10** (2013.01)

(73) Assignees: **TOYOTA MOTOR ENGINEERING
& MANUFACTURING NORTH
AMERICA, INC.**, Plano, TX (US);
**TOYOTA JIDOSHA KABUSHIKI
KAISHA**, Toyota-Shi (JP)

(57) **ABSTRACT**

Systems and methods are provided for forming remote vehicular micro clouds at one or more remote locations. According to some embodiments, the methods and systems comprise responsive to receiving a request to form a vehicular micro cloud from a client device, communicating with a plurality of vehicles within an area of a geographic location to collectively form a vehicular micro cloud at the geographic location, where client device is remote from the area of the geographic location. The methods and systems further include receiving resource data from the plurality of vehicles, the resource data comprising detection results of an environment surrounding the geographic location based on sensor sets of the plurality of vehicles, and transmitting the resource data to the client device.

(21) Appl. No.: **18/596,470**

(22) Filed: **Mar. 5, 2024**

Related U.S. Application Data

(63) Continuation of application No. 17/945,495, filed on
Sep. 15, 2022, now Pat. No. 11,962,472.

