

## (19) United States

# (12) Patent Application Publication (10) Pub. No.: US 2023/0232181 A1

Chen et al.

Jul. 20, 2023 (43) **Pub. Date:** 

(54) SCHEMES FOR EFFECTIVELY ESTIMATING USER BEHAVIOR TO ACHIEVE A VARIETY OF AUTOMATIC APPLICATIONS BY DETECTING THE ANGLE OF THE TRANSMITTED SIGNAL TO GENERATE HEAD POSE DIRECTION ESTIMATION

Applicant: PixArt Imaging Inc., Hsin-Chu City

(TW)

Inventors: Shih-Feng Chen, Hsin-Chu City (TW); (72)Yen-Min Chang, Hsin-Chu City (TW)

(73)Assignee: PixArt Imaging Inc., Hsin-Chu City

(TW)

Appl. No.: 18/127,671 (21)

Filed: (22)Mar. 29, 2023

#### Related U.S. Application Data

Continuation of application No. 16/896,257, filed on Jun. 9, 2020, now Pat. No. 11,647,351.

### **Publication Classification**

(51)	Int. Cl.	
` /	H04S 7/00	(2006.01)
	G06F 3/01	(2006.01)
	G06F 3/16	(2006.01)
	H04W 4/02	(2006.01)
	H04W 4/029	(2006.01)

H04W 4/80 (2006.01)H04W 4/024 H04W 12/50 (2006.01)(2006.01)

(52) U.S. Cl. CPC ...... H04S 7/304 (2013.01); G06F 3/012 (2013.01); G06F 3/167 (2013.01); H04W 4/024 (2018.02); H04W 4/026 (2013.01); H04W 4/029 (2018.02); H04W 4/80 (2018.02); H04W 12/50 (2021.01)

#### (57)**ABSTRACT**

A method of wireless communication locator station to be disposed at specific location includes: detecting rotation angle information of client-based portable device, carried or worn by user, according to specific wireless communication standard between wireless communication locator station and client-based portable device when client-based portable device is within signal range of wireless communication locator station; generating head pose direction estimation according to calculated rotation angle information; and when head pose direction estimation indicates that a user turns face towards wireless communication locator station, sending packet signal from wireless communication locator station to server-based portable device, successfully paired with and security-connected with client-based portable device, so that server-based portable device can transfer packet signal to client-based portable device after receiving packet signal.

