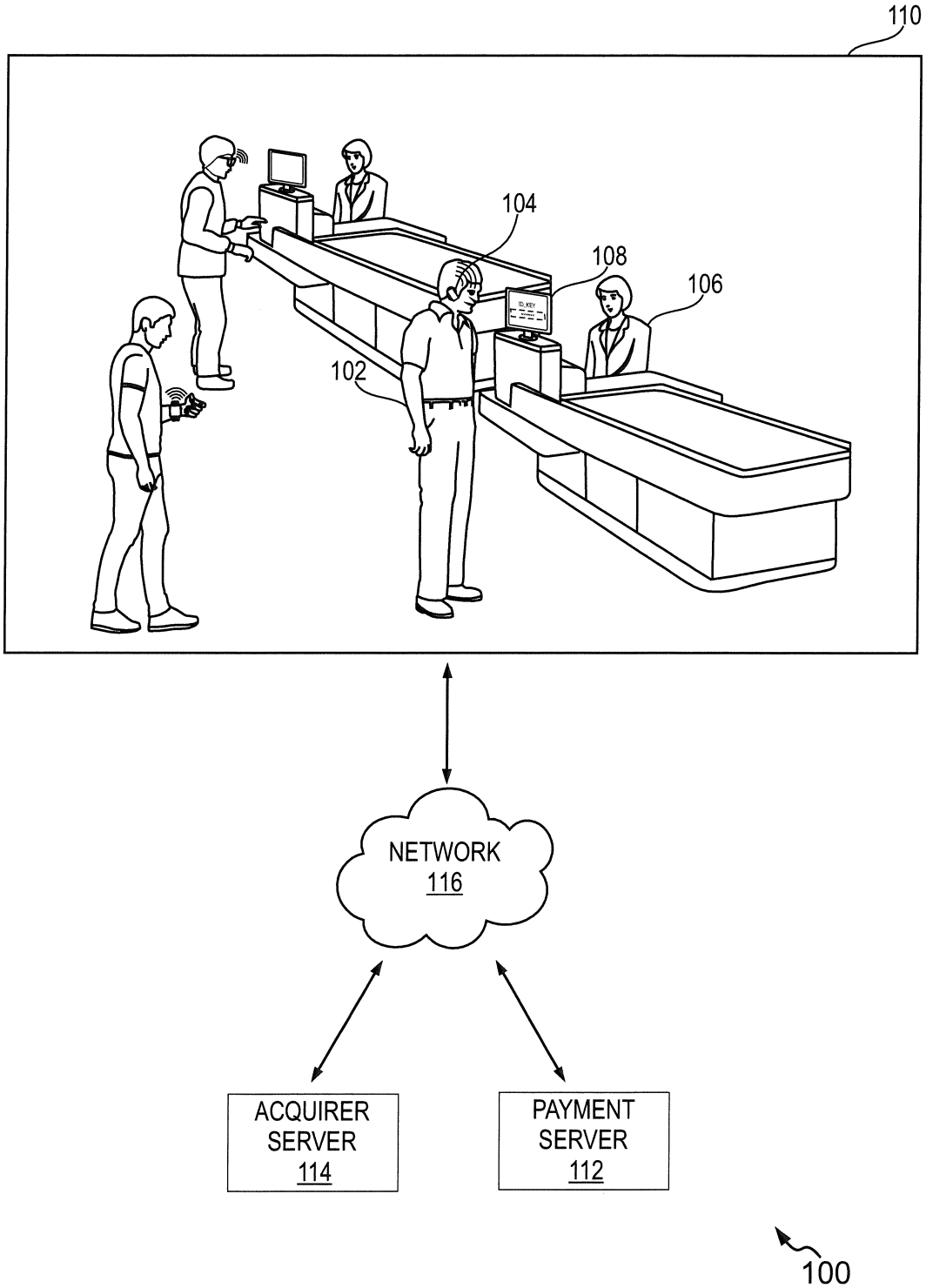

110
104
108
106
102
NETWORK
116
ACQUIRER
SERVER
114
PAYMENT
SERVER
112
100

FIG. 1

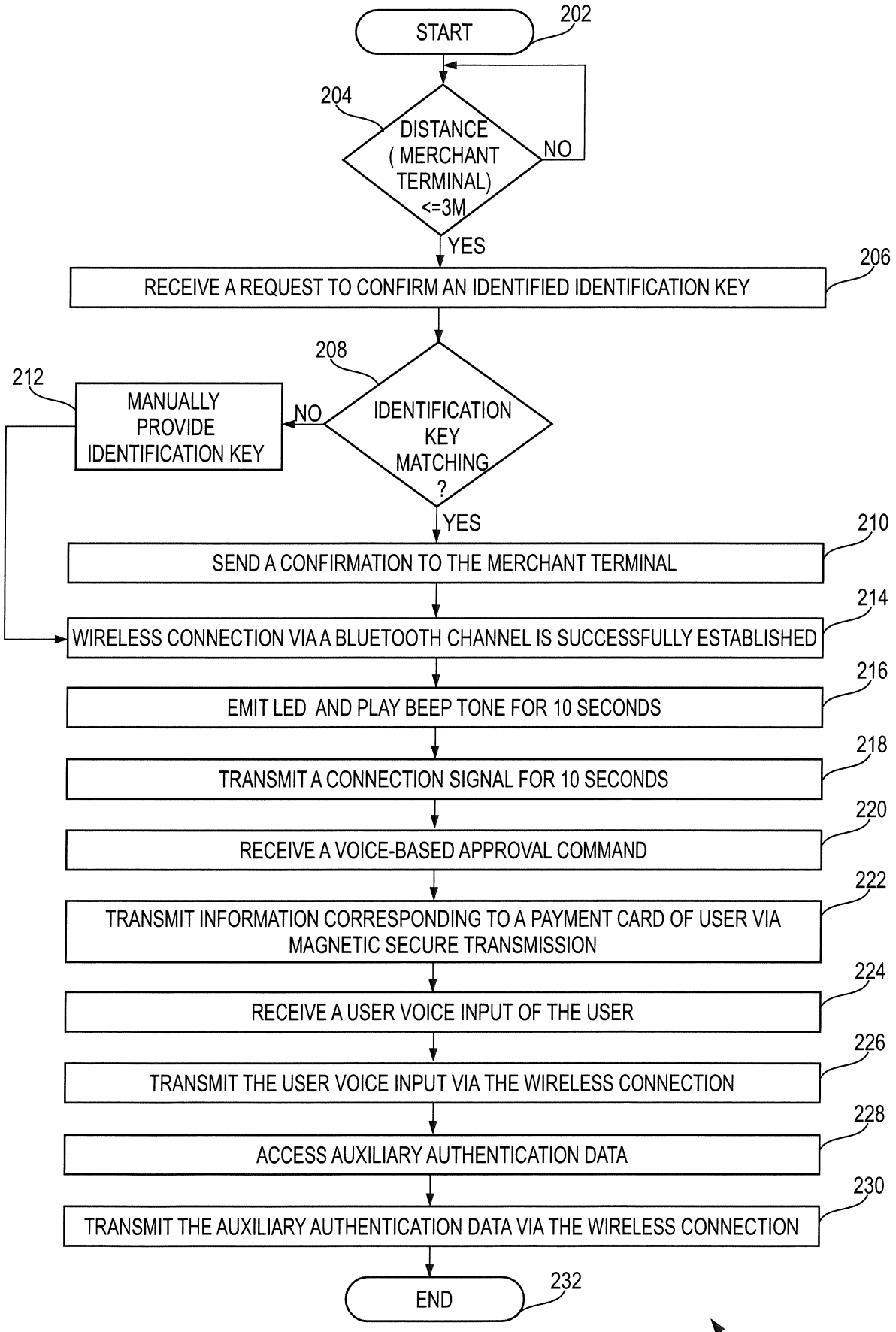

START
202
204
DISTANCE (MERCHANT TERMINAL) <=3M
NO
YES
206
RECEIVE A REQUEST TO CONFIRM AN IDENTIFIED IDENTIFICATION KEY
208
IDENTIFICATION KEY MATCHING ?
NO
212
MANUALLY PROVIDE IDENTIFICATION KEY
YES
210
SEND A CONFIRMATION TO THE MERCHANT TERMINAL
214
WIRELESS CONNECTION VIA A BLUETOOTH CHANNEL IS SUCCESSFULLY ESTABLISHED
216
EMIT LED AND PLAY BEEP TONE FOR 10 SECONDS
218
TRANSMIT A CONNECTION SIGNAL FOR 10 SECONDS
220
RECEIVE A VOICE-BASED APPROVAL COMMAND
222
TRANSMIT INFORMATION CORRESPONDING TO A PAYMENT CARD OF USER VIA MAGNETIC SECURE TRANSMISSION
224
RECEIVE A USER VOICE INPUT OF THE USER
226
TRANSMIT THE USER VOICE INPUT VIA THE WIRELESS CONNECTION
228
ACCESS AUXILIARY AUTHENTICATION DATA
230
TRANSMIT THE AUXILIARY AUTHENTICATION DATA VIA THE WIRELESS CONNECTION
232
END
200

FIG. 2

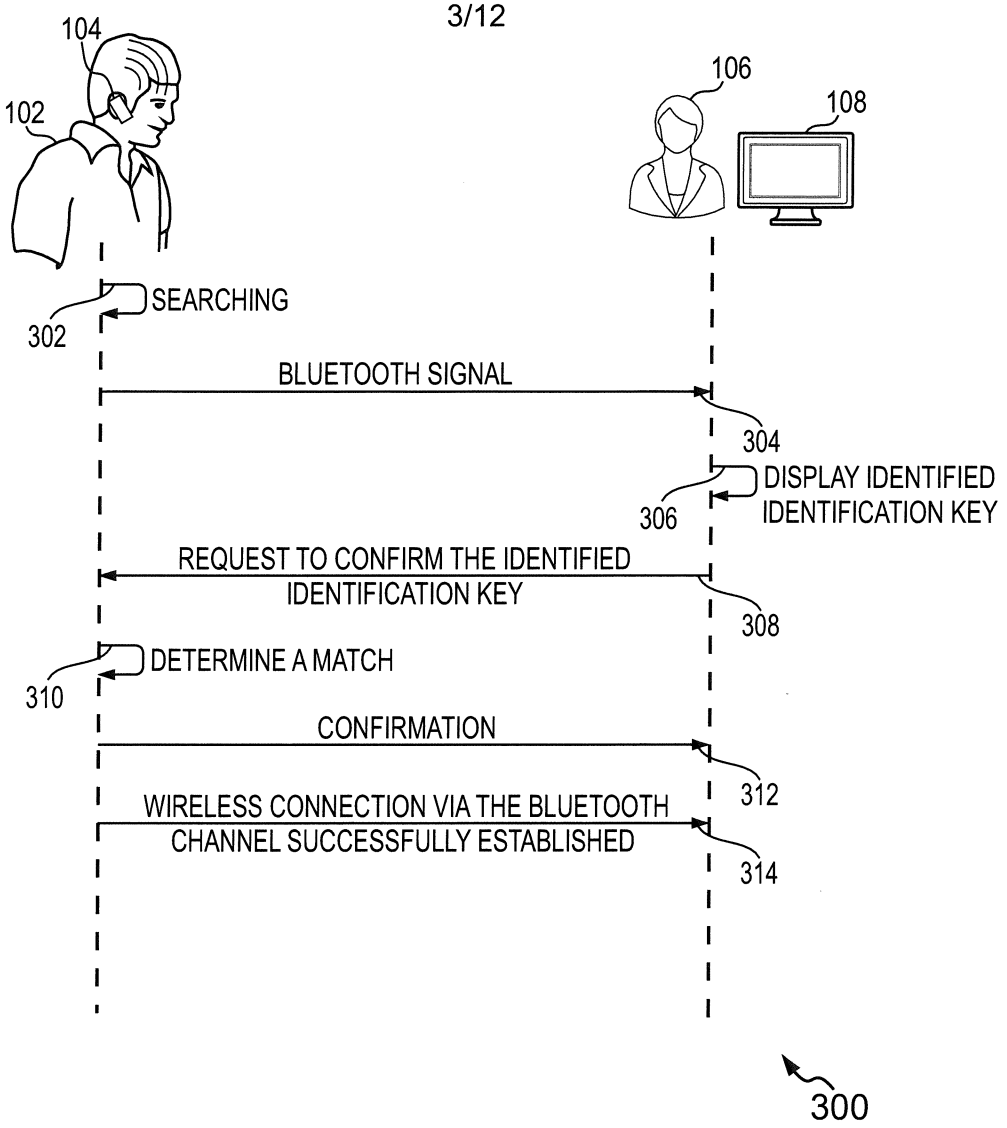

104
102
106
108
SEARCHING
302
BLUETOOTH SIGNAL
304
DISPLAY IDENTIFIED IDENTIFICATION KEY
306
REQUEST TO CONFIRM THE IDENTIFIED IDENTIFICATION KEY
308
DETERMINE A MATCH
310
CONFIRMATION
312
WIRELESS CONNECTION VIA THE BLUETOOTH CHANNEL SUCCESSFULLY ESTABLISHED
314
300

FIG. 3

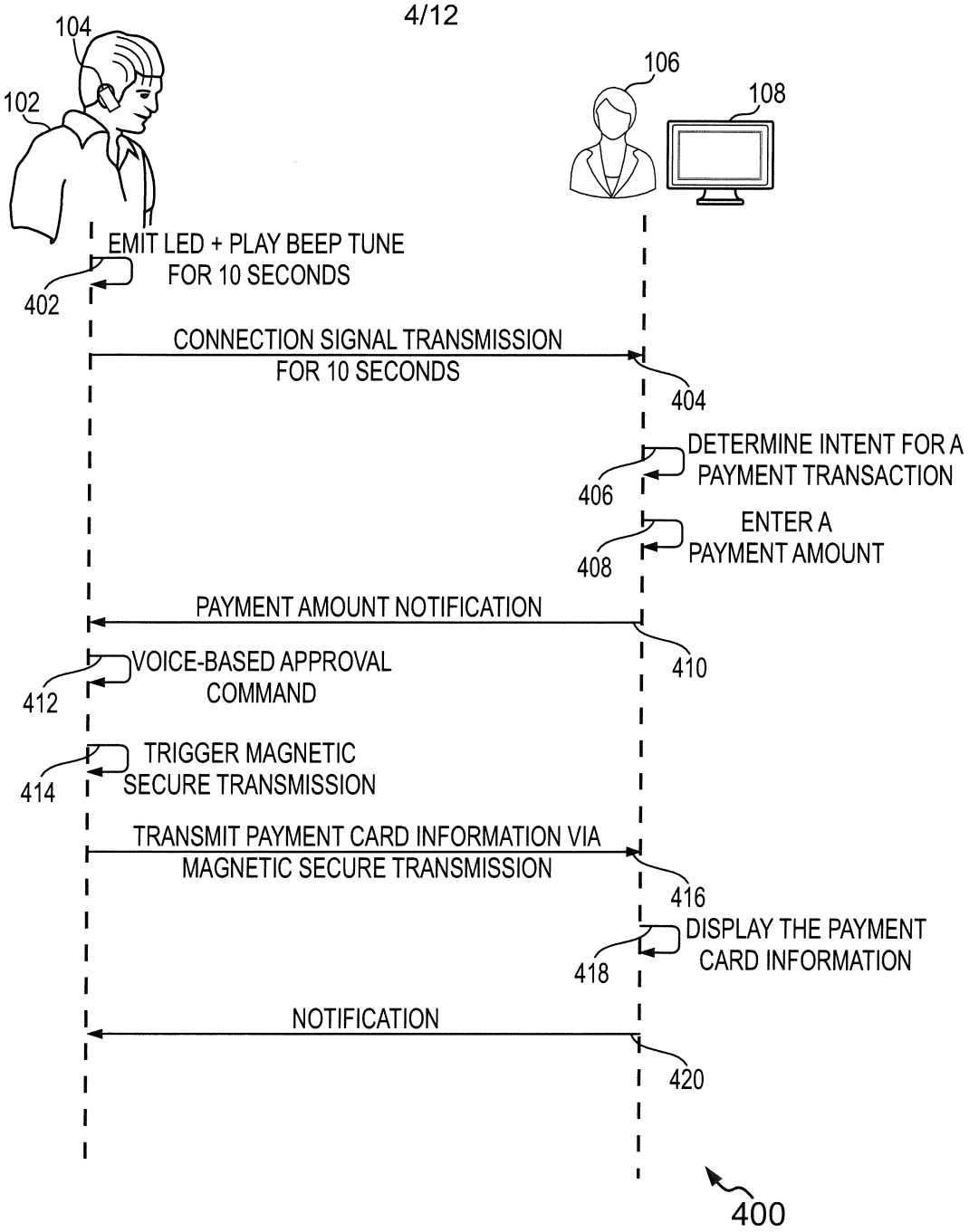

104
102
106
108
EMIT LED + PLAY BEEP TUNE FOR 10 SECONDS
402
CONNECTION SIGNAL TRANSMISSION FOR 10 SECONDS
404
DETERMINE INTENT FOR A PAYMENT TRANSACTION
406
ENTER A PAYMENT AMOUNT
408
PAYMENT AMOUNT NOTIFICATION
410
VOICE-BASED APPROVAL COMMAND
412
TRIGGER MAGNETIC SECURE TRANSMISSION
414
TRANSMIT PAYMENT CARD INFORMATION VIA MAGNETIC SECURE TRANSMISSION
416
DISPLAY THE PAYMENT CARD INFORMATION
418
NOTIFICATION
420
400

FIG. 4

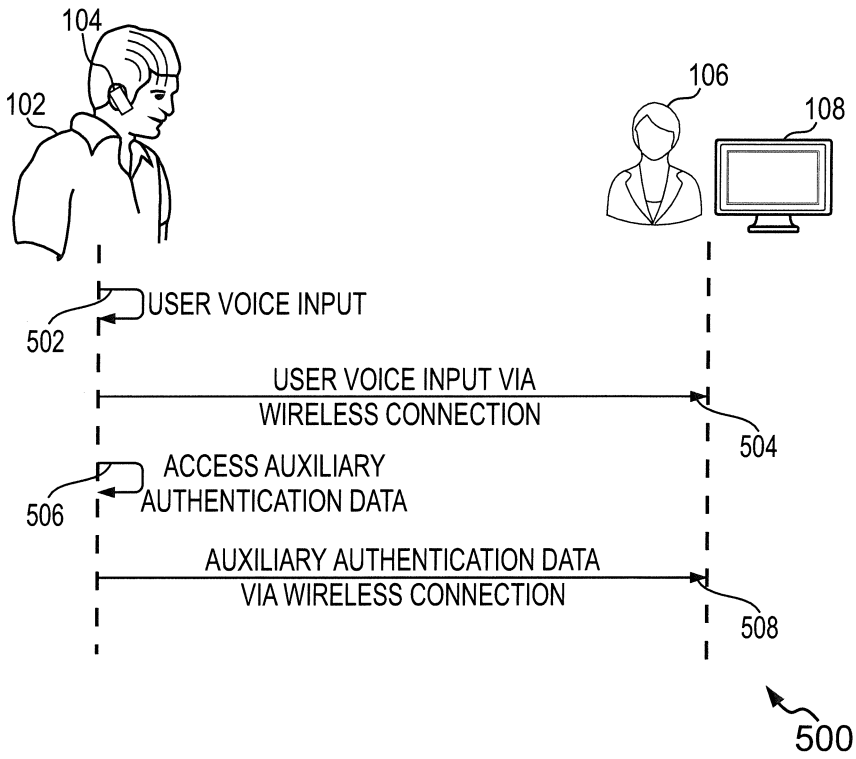

104
102
106
108
USER VOICE INPUT
502
USER VOICE INPUT VIA
WIRELESS CONNECTION
504
ACCESS AUXILIARY
AUTHENTICATION DATA
506
AUXILIARY AUTHENTICATION DATA
VIA WIRELESS CONNECTION
508
500

FIG. 5

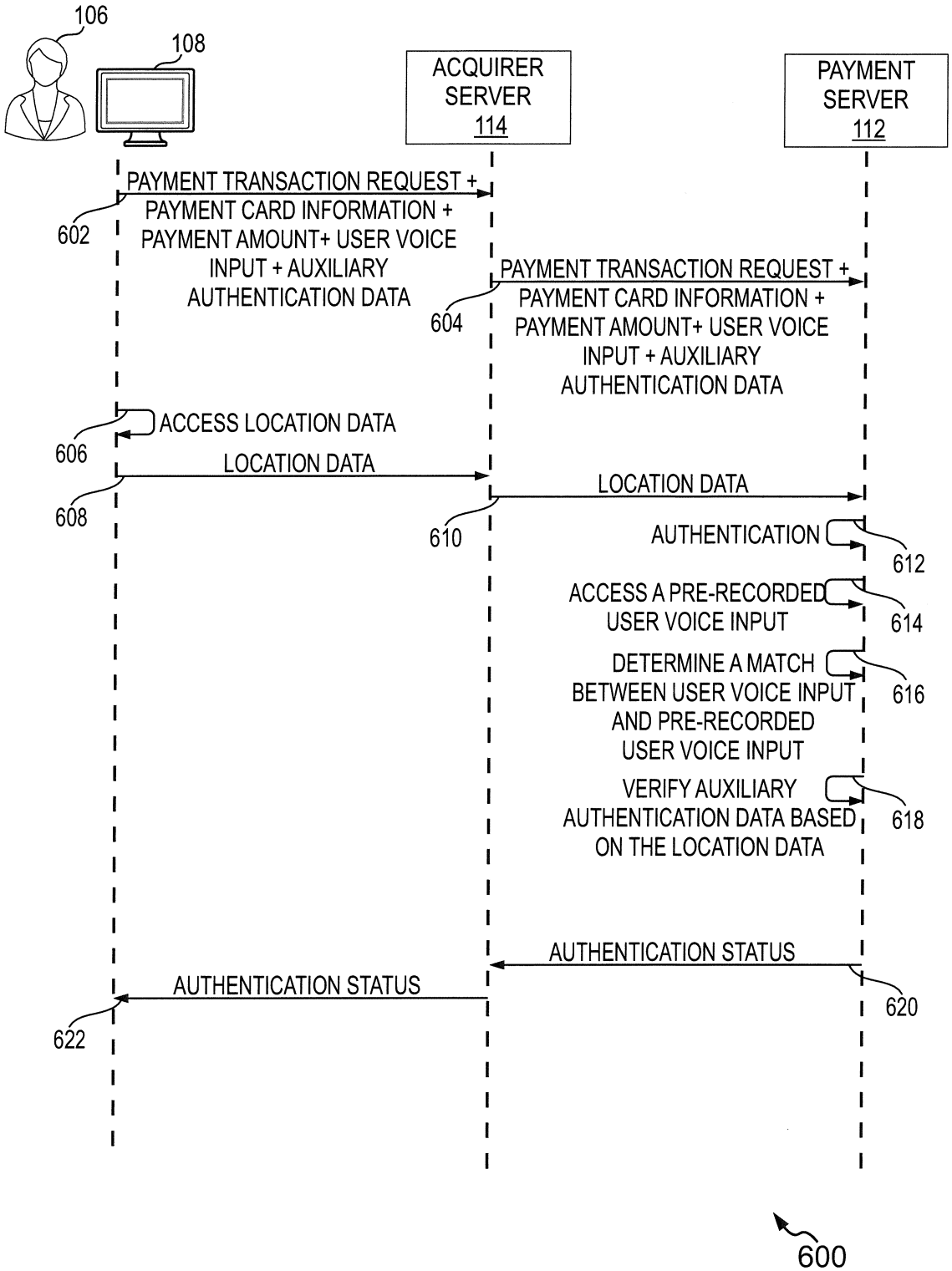

106
108
ACQUIRER SERVER 114
PAYMENT SERVER 112
PAYMENT TRANSACTION REQUEST + PAYMENT CARD INFORMATION + PAYMENT AMOUNT+ USER VOICE INPUT + AUXILIARY AUTHENTICATION DATA
602
PAYMENT TRANSACTION REQUEST + PAYMENT CARD INFORMATION + PAYMENT AMOUNT+ USER VOICE INPUT + AUXILIARY AUTHENTICATION DATA
604
ACCESS LOCATION DATA
606
LOCATION DATA
608
LOCATION DATA
610
AUTHENTICATION
612
ACCESS A PRE-RECORDED USER VOICE INPUT
614
DETERMINE A MATCH BETWEEN USER VOICE INPUT AND PRE-RECORDED USER VOICE INPUT
616
VERIFY AUXILIARY AUTHENTICATION DATA BASED ON THE LOCATION DATA
618
AUTHENTICATION STATUS
620
AUTHENTICATION STATUS
622
600

FIG. 6

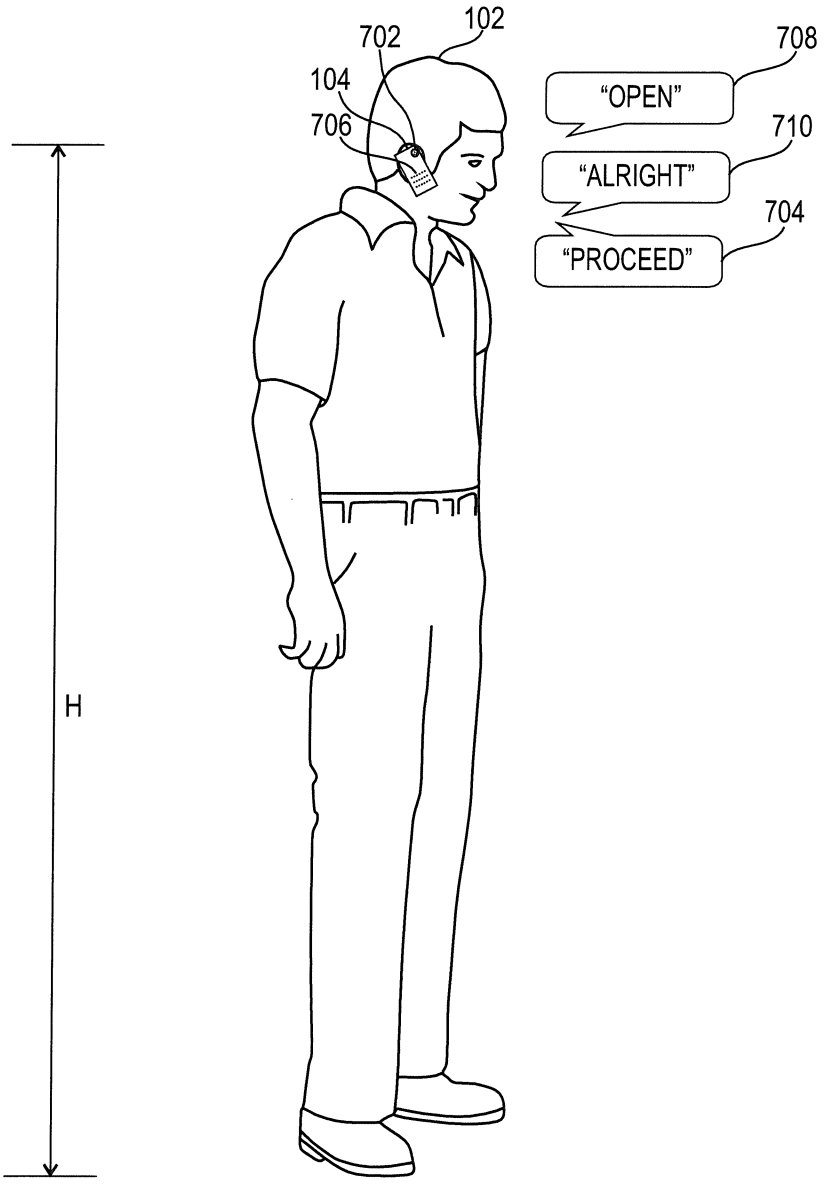


FIG. 7

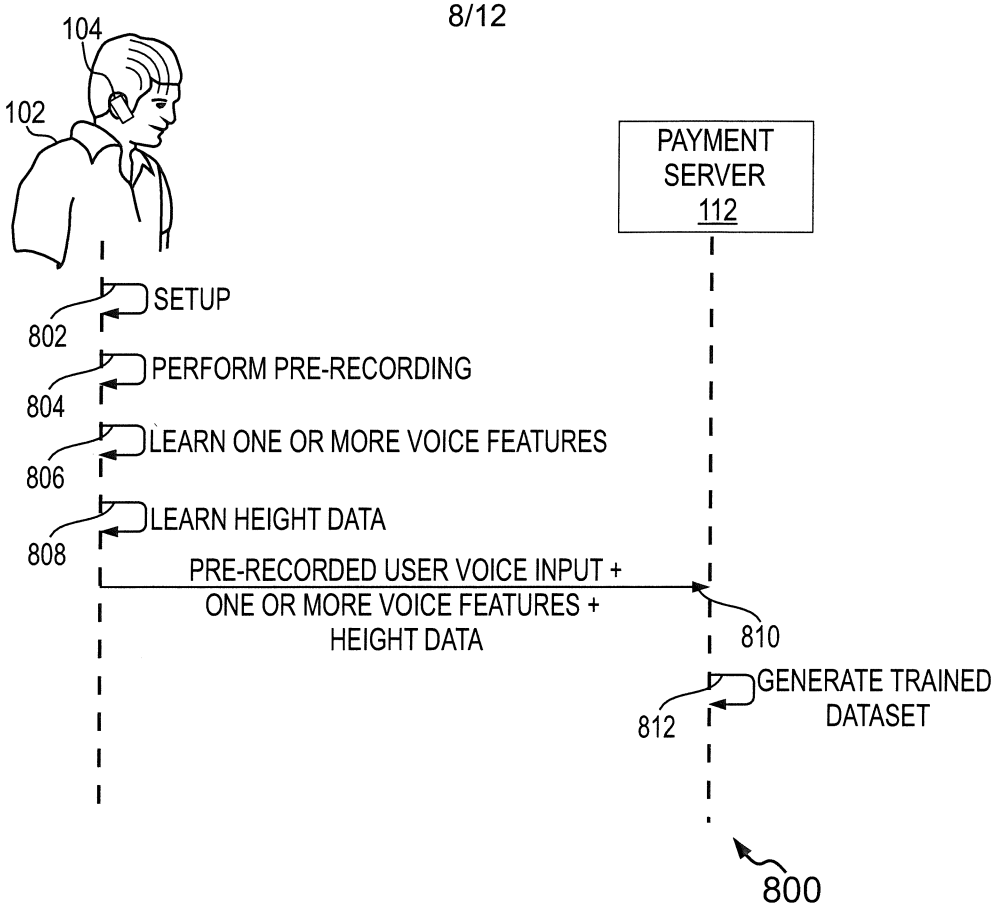

104
102
PAYMENT SERVER 112
SETUP
802
PERFORM PRE-RECORDING
804
LEARN ONE OR MORE VOICE FEATURES
806
LEARN HEIGHT DATA
808
PRE-RECORDED USER VOICE INPUT +
ONE OR MORE VOICE FEATURES +
HEIGHT DATA
810
GENERATE TRAINED DATASET
812
800

FIG. 8

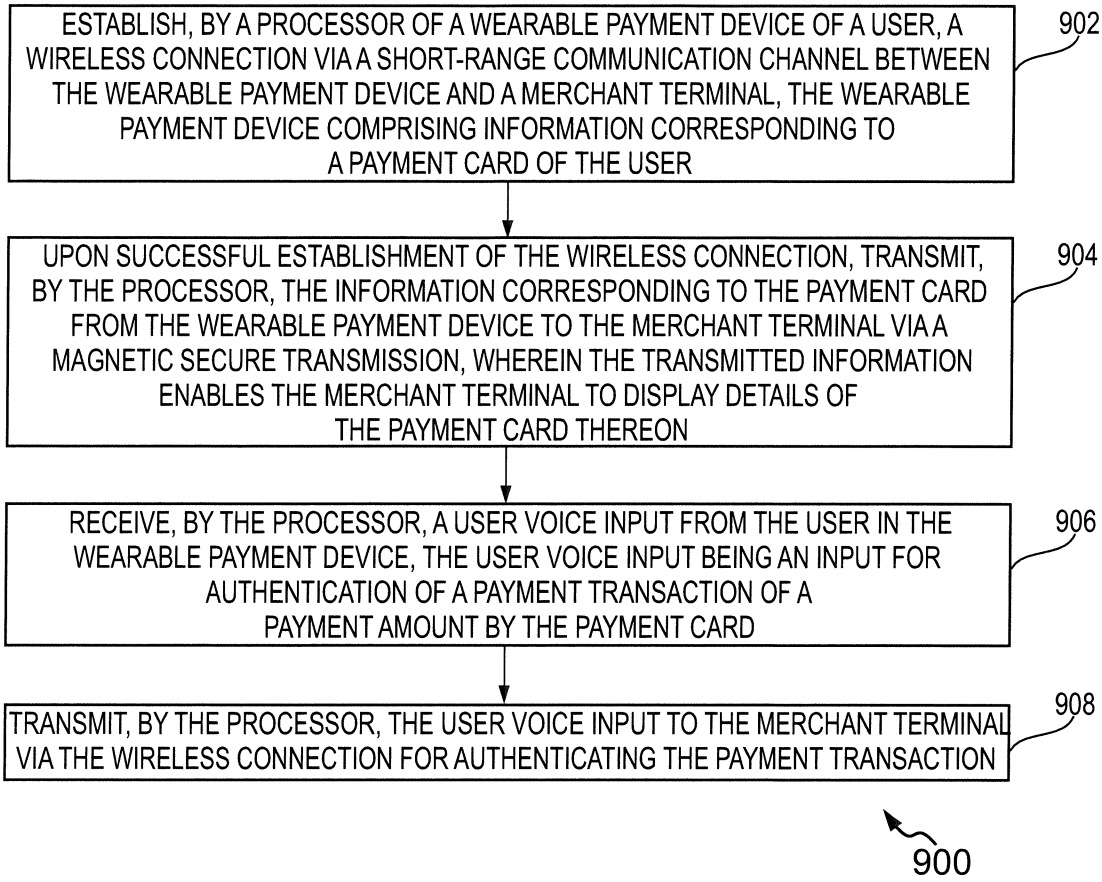

ESTABLISH, BY A PROCESSOR OF A WEARABLE PAYMENT DEVICE OF A USER, A WIRELESS CONNECTION VIA A SHORT-RANGE COMMUNICATION CHANNEL BETWEEN THE WEARABLE PAYMENT DEVICE AND A MERCHANT TERMINAL, THE WEARABLE PAYMENT DEVICE COMPRISING INFORMATION CORRESPONDING TO A PAYMENT CARD OF THE USER
902
UPON SUCCESSFUL ESTABLISHMENT OF THE WIRELESS CONNECTION, TRANSMIT, BY THE PROCESSOR, THE INFORMATION CORRESPONDING TO THE PAYMENT CARD FROM THE WEARABLE PAYMENT DEVICE TO THE MERCHANT TERMINAL VIA A MAGNETIC SECURE TRANSMISSION, WHEREIN THE TRANSMITTED INFORMATION ENABLES THE MERCHANT TERMINAL TO DISPLAY DETAILS OF THE PAYMENT CARD THEREON
904
RECEIVE, BY THE PROCESSOR, A USER VOICE INPUT FROM THE USER IN THE WEARABLE PAYMENT DEVICE, THE USER VOICE INPUT BEING AN INPUT FOR AUTHENTICATION OF A PAYMENT TRANSACTION OF A PAYMENT AMOUNT BY THE PAYMENT CARD
906
TRANSMIT, BY THE PROCESSOR, THE USER VOICE INPUT TO THE MERCHANT TERMINAL VIA THE WIRELESS CONNECTION FOR AUTHENTICATING THE PAYMENT TRANSACTION
908
900

FIG. 9

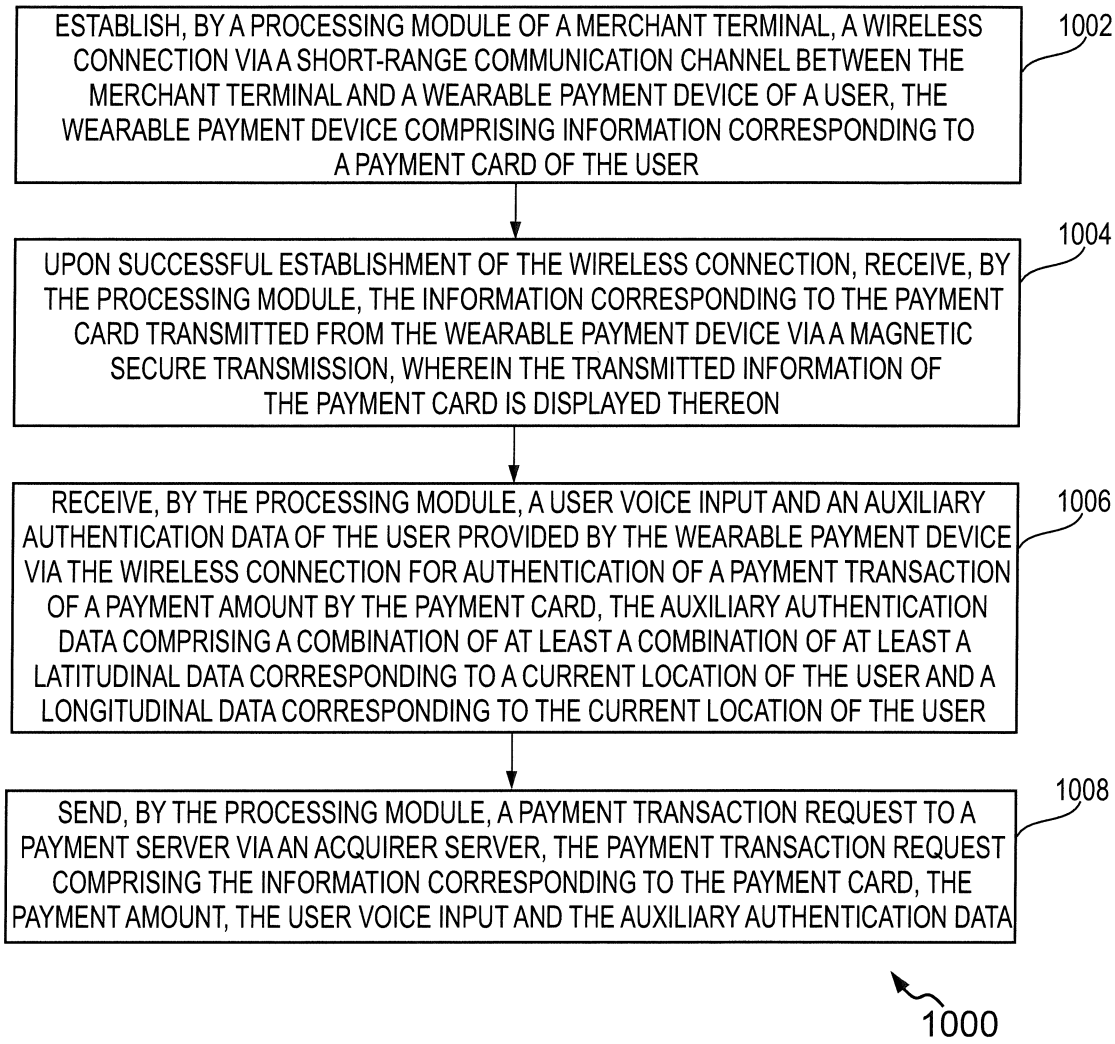

ESTABLISH, BY A PROCESSING MODULE OF A MERCHANT TERMINAL, A WIRELESS CONNECTION VIA A SHORT-RANGE COMMUNICATION CHANNEL BETWEEN THE MERCHANT TERMINAL AND A WEARABLE PAYMENT DEVICE OF A USER, THE WEARABLE PAYMENT DEVICE COMPRISING INFORMATION CORRESPONDING TO A PAYMENT CARD OF THE USER
1002
UPON SUCCESSFUL ESTABLISHMENT OF THE WIRELESS CONNECTION, RECEIVE, BY THE PROCESSING MODULE, THE INFORMATION CORRESPONDING TO THE PAYMENT CARD TRANSMITTED FROM THE WEARABLE PAYMENT DEVICE VIA A MAGNETIC SECURE TRANSMISSION, WHEREIN THE TRANSMITTED INFORMATION OF THE PAYMENT CARD IS DISPLAYED THEREON
1004
RECEIVE, BY THE PROCESSING MODULE, A USER VOICE INPUT AND AN AUXILIARY AUTHENTICATION DATA OF THE USER PROVIDED BY THE WEARABLE PAYMENT DEVICE VIA THE WIRELESS CONNECTION FOR AUTHENTICATION OF A PAYMENT TRANSACTION OF A PAYMENT AMOUNT BY THE PAYMENT CARD, THE AUXILIARY AUTHENTICATION DATA COMPRISING A COMBINATION OF AT LEAST A COMBINATION OF AT LEAST A LATITUDINAL DATA CORRESPONDING TO A CURRENT LOCATION OF THE USER AND A LONGITUDINAL DATA CORRESPONDING TO THE CURRENT LOCATION OF THE USER
1006
SEND, BY THE PROCESSING MODULE, A PAYMENT TRANSACTION REQUEST TO A PAYMENT SERVER VIA AN ACQUIRER SERVER, THE PAYMENT TRANSACTION REQUEST COMPRISING THE INFORMATION CORRESPONDING TO THE PAYMENT CARD, THE PAYMENT AMOUNT, THE USER VOICE INPUT AND THE AUXILIARY AUTHENTICATION DATA
1008
1000

FIG. 10

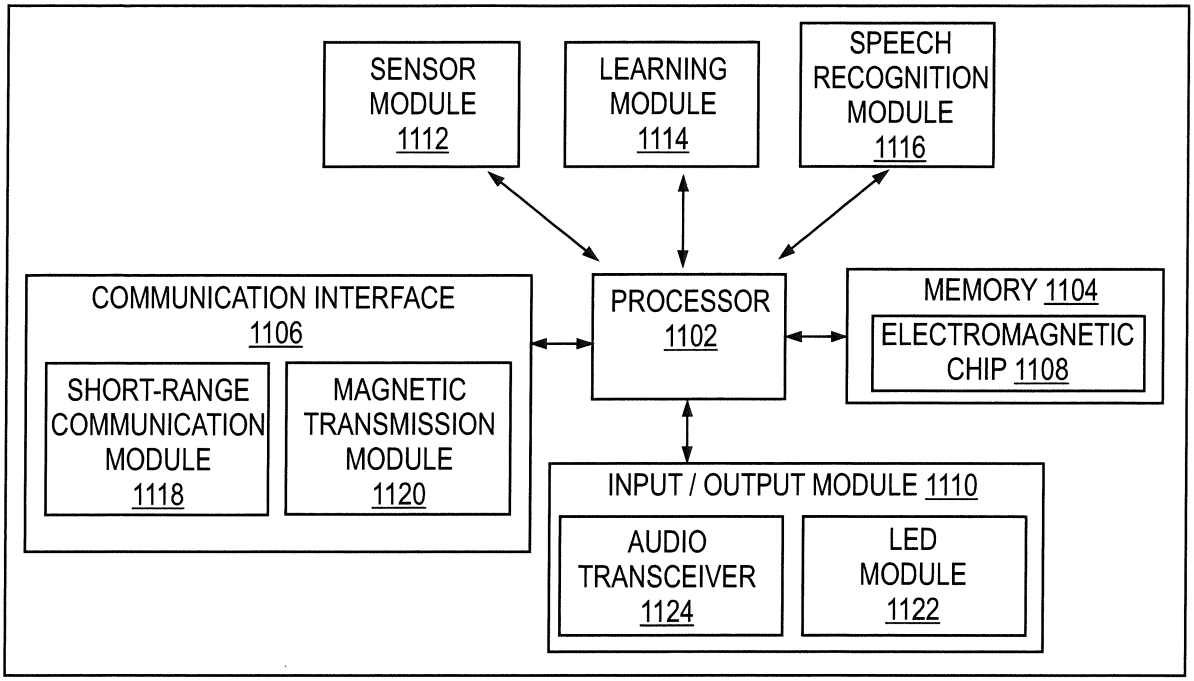

SENSOR MODULE 1112
LEARNING MODULE 1114
SPEECH RECOGNITION MODULE 1116
COMMUNICATION INTERFACE 1106
SHORT-RANGE COMMUNICATION MODULE 1118
MAGNETIC TRANSMISSION MODULE 1120
PROCESSOR 1102
MEMORY 1104
ELECTROMAGNETIC CHIP 1108
INPUT / OUTPUT MODULE 1110
AUDIO TRANSCEIVER 1124
LED MODULE 1122
1100

FIG. 11

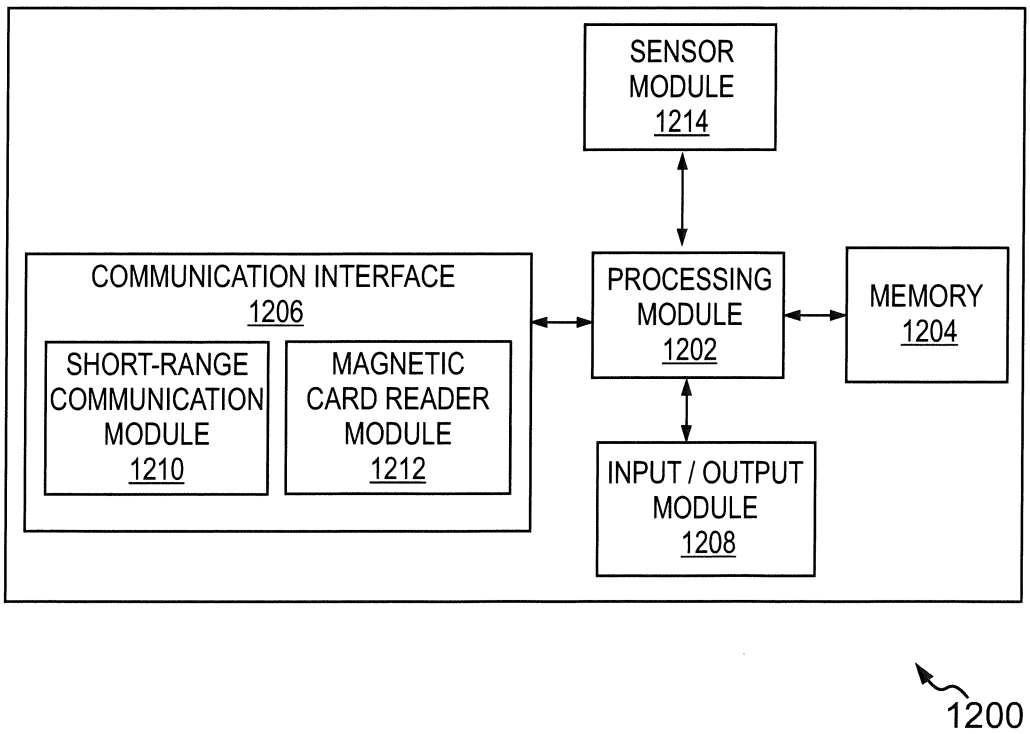

SENSOR MODULE 1214
COMMUNICATION INTERFACE 1206
SHORT-RANGE COMMUNICATION MODULE 1210
MAGNETIC CARD READER MODULE 1212
PROCESSING MODULE 1202
MEMORY 1204
INPUT / OUTPUT MODULE 1208
1200

FIG. 12

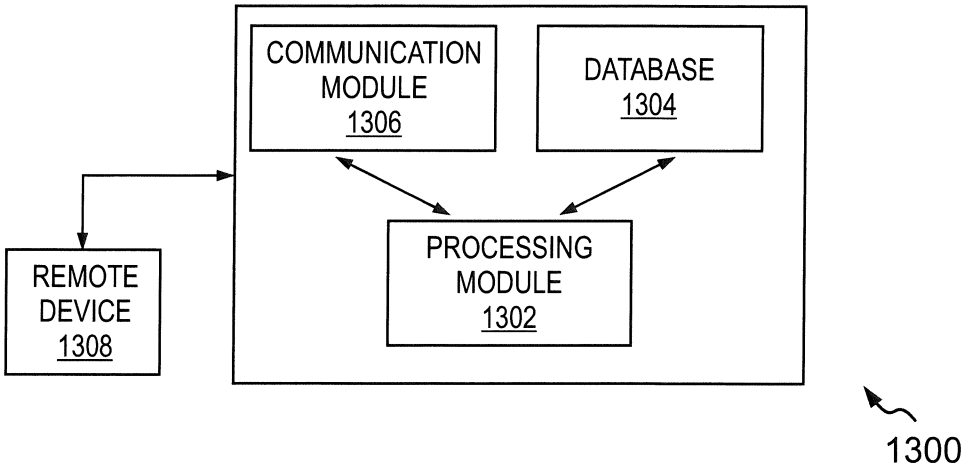

COMMUNICATION MODULE 1306
DATABASE 1304
PROCESSING MODULE 1302
REMOTE DEVICE 1308
1300

FIG. 13

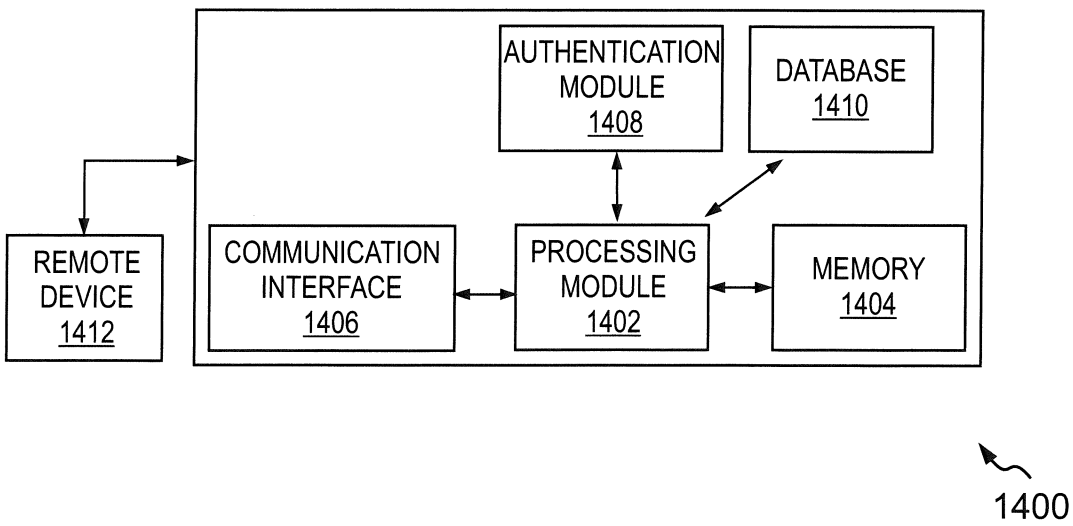

AUTHENTICATION MODULE 1408
DATABASE 1410
REMOTE DEVICE 1412
COMMUNICATION INTERFACE 1406
PROCESSING MODULE 1402
MEMORY 1404
1400

FIG. 14