Fig. 1

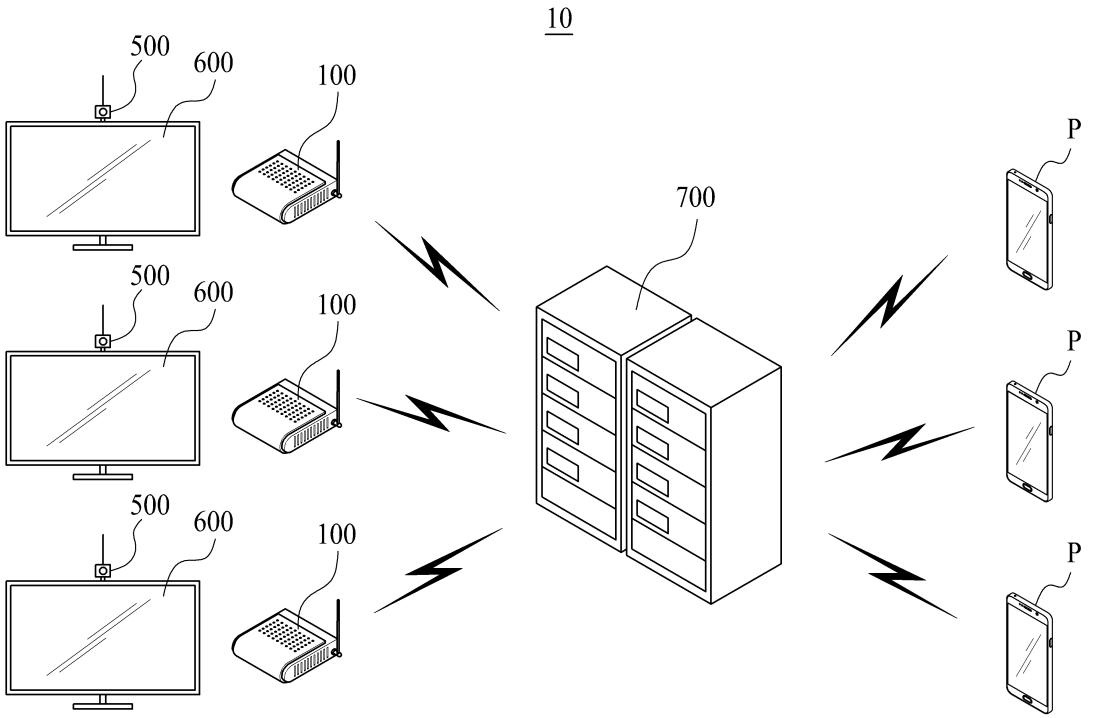


Fig. 2

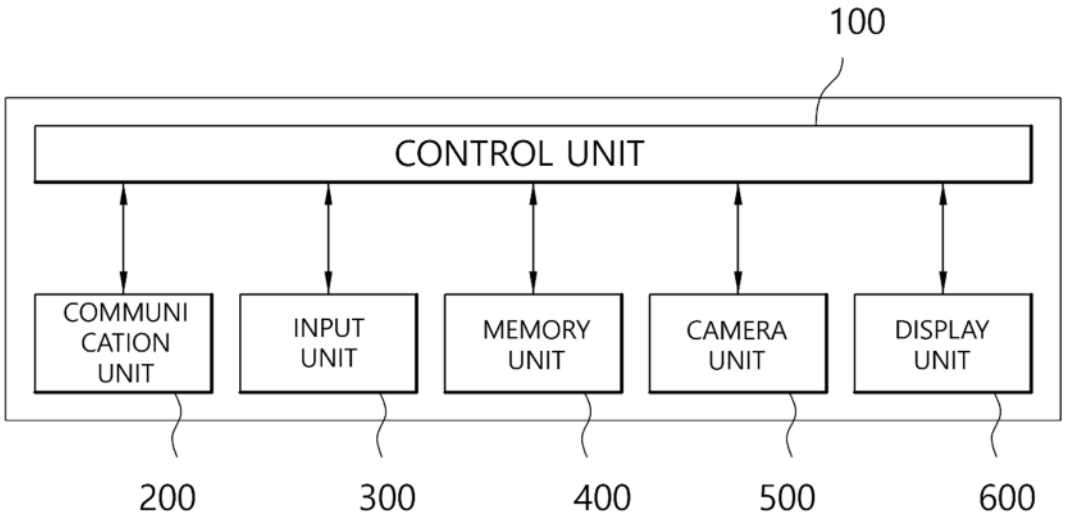

100
CONTROL UNIT
COMMUNI CATION UNIT
INPUT UNIT
MEMORY UNIT
CAMERA UNIT
DISPLAY UNIT
200
300
400
500
600

Fig. 3

(a)


ROCK, PAPER, SCISSORS
WE'RE GOING TO PLAY A DIFFERENT KIND OF ROCK-PAPER-SCISSORS. THE GAME IS TO SEE THE ROCK-PAPER-SCISSORS SIGN PLAYED BY THE TEACHER AND THEN PLAY A DIFFERENT ONE OR INTENTIONALLY CHOOSE THE LOSING ONE.

(b)


ODD! EVEN!
IN THIS GAME, YOU TRY TO GUESS THE NUMBER BY SHOWING EITHER A CIRCLE OR AN X WITH BOTH HANDS. YOU ALSO NEED TO CALCULATE THE NUMBER CORRECTLY!

(c)


BOTH-HAND BODY TOUCH
IN THIS GAME, YOU TOUCH YOUR BODY WITH BOTH HANDS ACCORDING TO THE TEACHER'S COMMAND.

Fig. 4

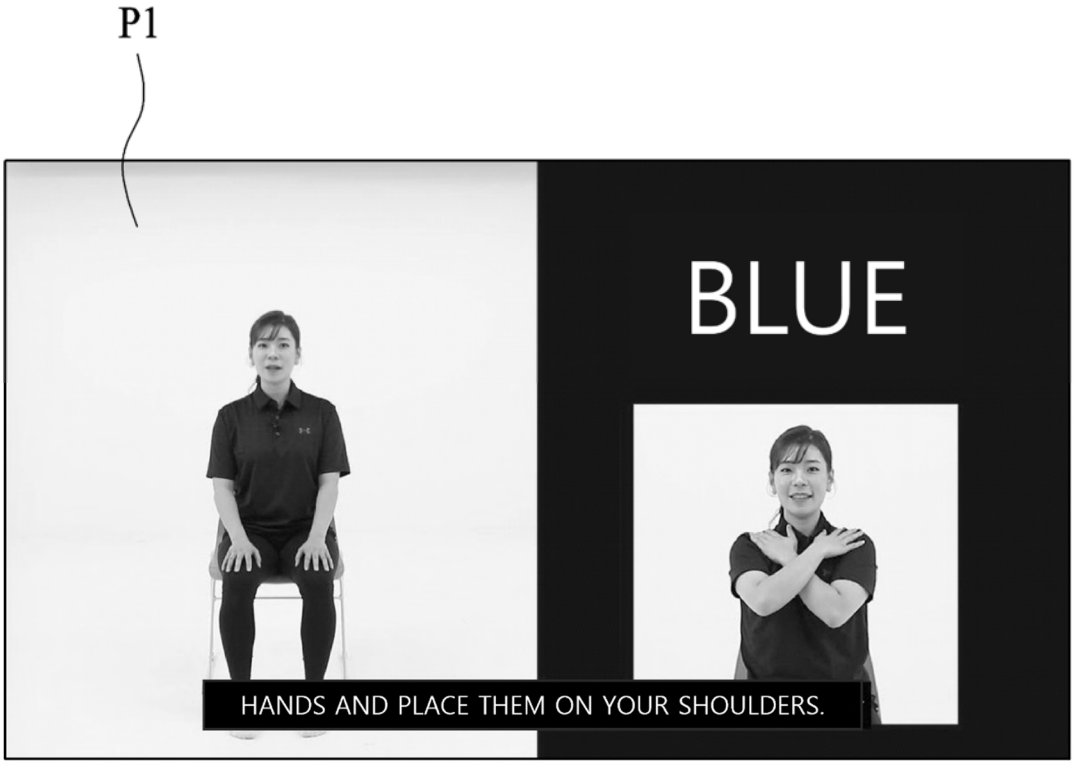


Fig. 5


600
1:38
150
Pick what beats the missing option
when the coach shows two
PERFECT!
P1
P2

Fig. 6

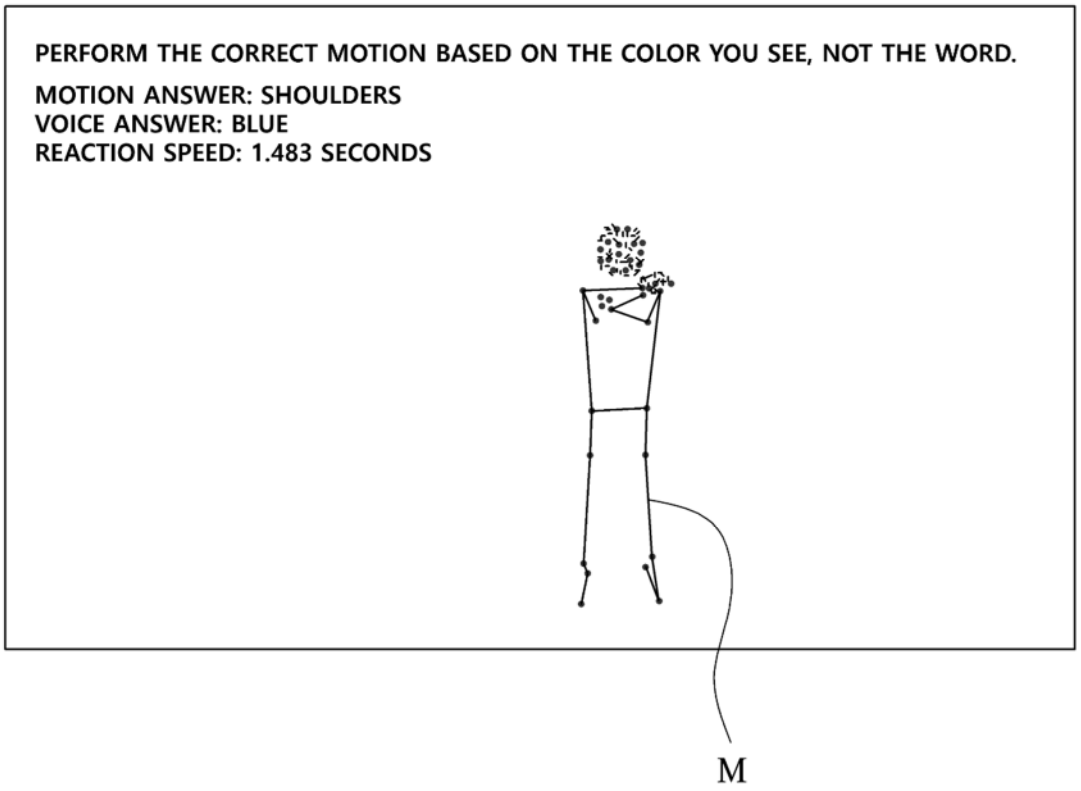

PERFORM THE CORRECT MOTION BASED ON THE COLOR YOU SEE, NOT THE WORD.
MOTION ANSWER: SHOULDERS
VOICE ANSWER: BLUE
REACTION SPEED: 1.483 SECONDS
M

Fig. 7

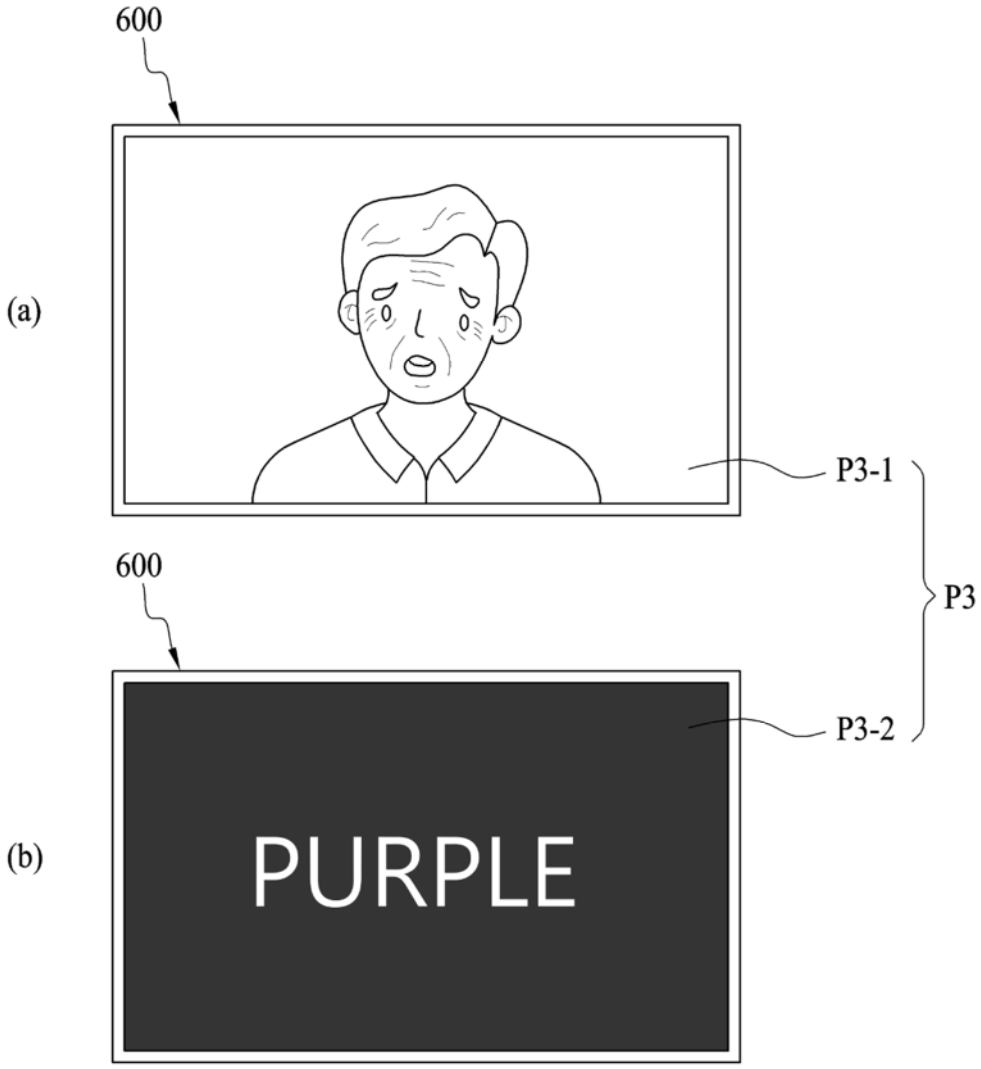


Fig. 8

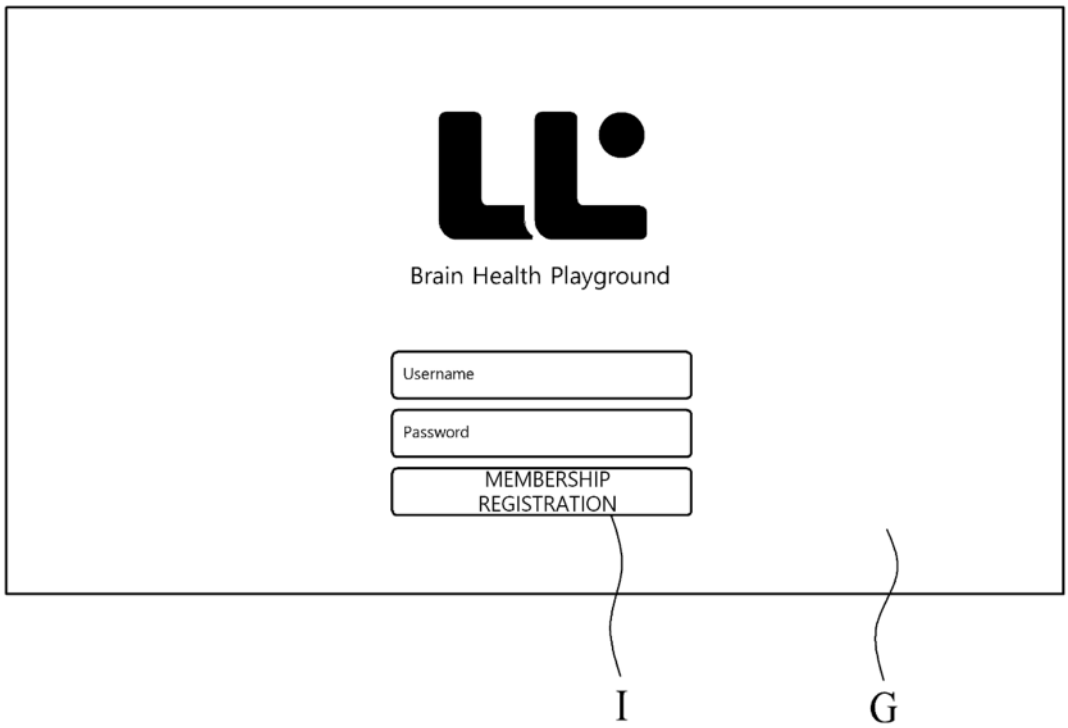

Brain Health Playground
Username
Password
MEMBERSHIP REGISTRATION
I
G

Fig. 9

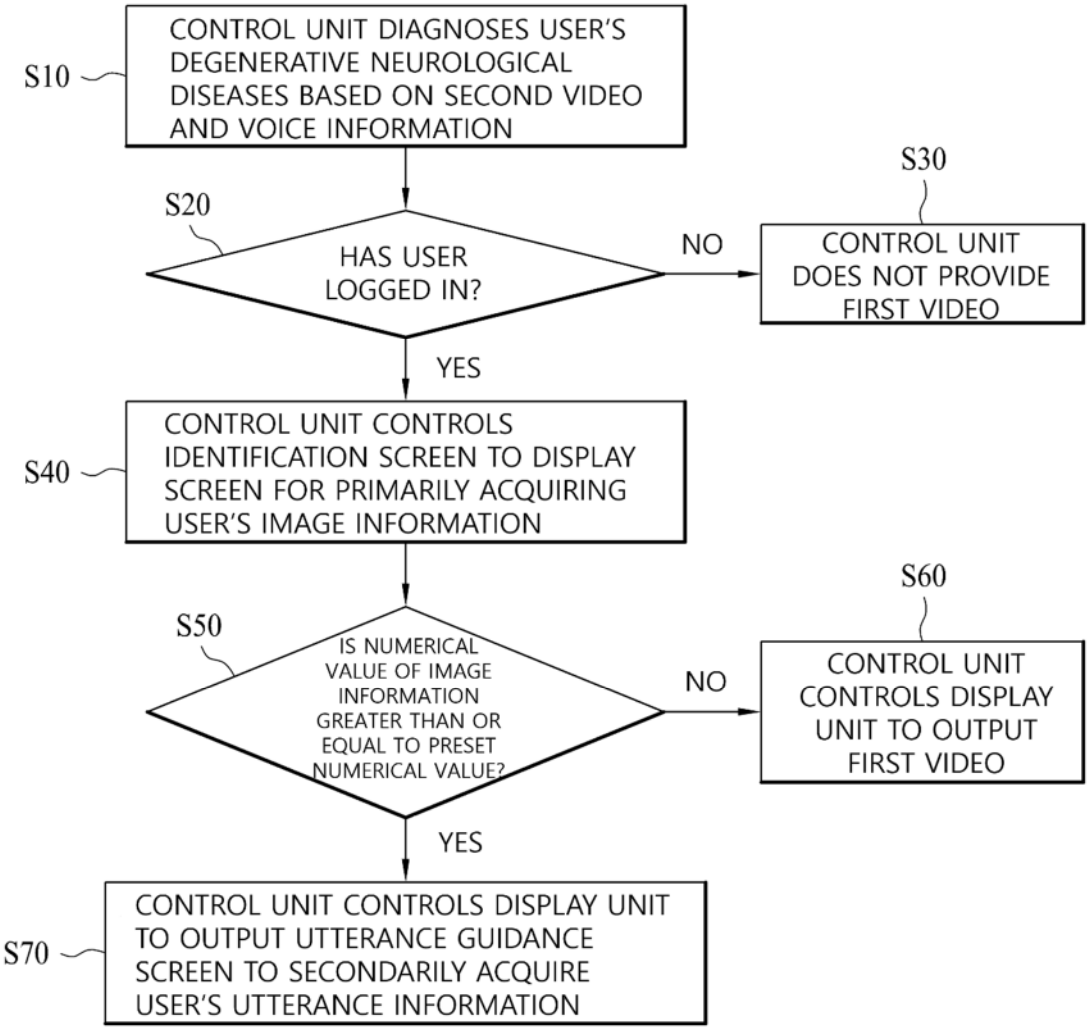

S10
CONTROL UNIT DIAGNOSES USER'S DEGENERATIVE NEUROLOGICAL DISEASES BASED ON SECOND VIDEO AND VOICE INFORMATION
S20
HAS USER LOGGED IN?
NO
S30
CONTROL UNIT DOES NOT PROVIDE FIRST VIDEO
YES
S40
CONTROL UNIT CONTROLS IDENTIFICATION SCREEN TO DISPLAY SCREEN FOR PRIMARILY ACQUIRING USER'S IMAGE INFORMATION
S50
IS NUMERICAL VALUE OF IMAGE INFORMATION GREATER THAN OR EQUAL TO PRESET NUMERICAL VALUE?
NO
S60
CONTROL UNIT CONTROLS DISPLAY UNIT TO OUTPUT FIRST VIDEO
YES
S70
CONTROL UNIT CONTROLS DISPLAY UNIT TO OUTPUT UTTERANCE GUIDANCE SCREEN TO SECONDARILY ACQUIRE USER'S UTTERANCE INFORMATION

Fig. 10

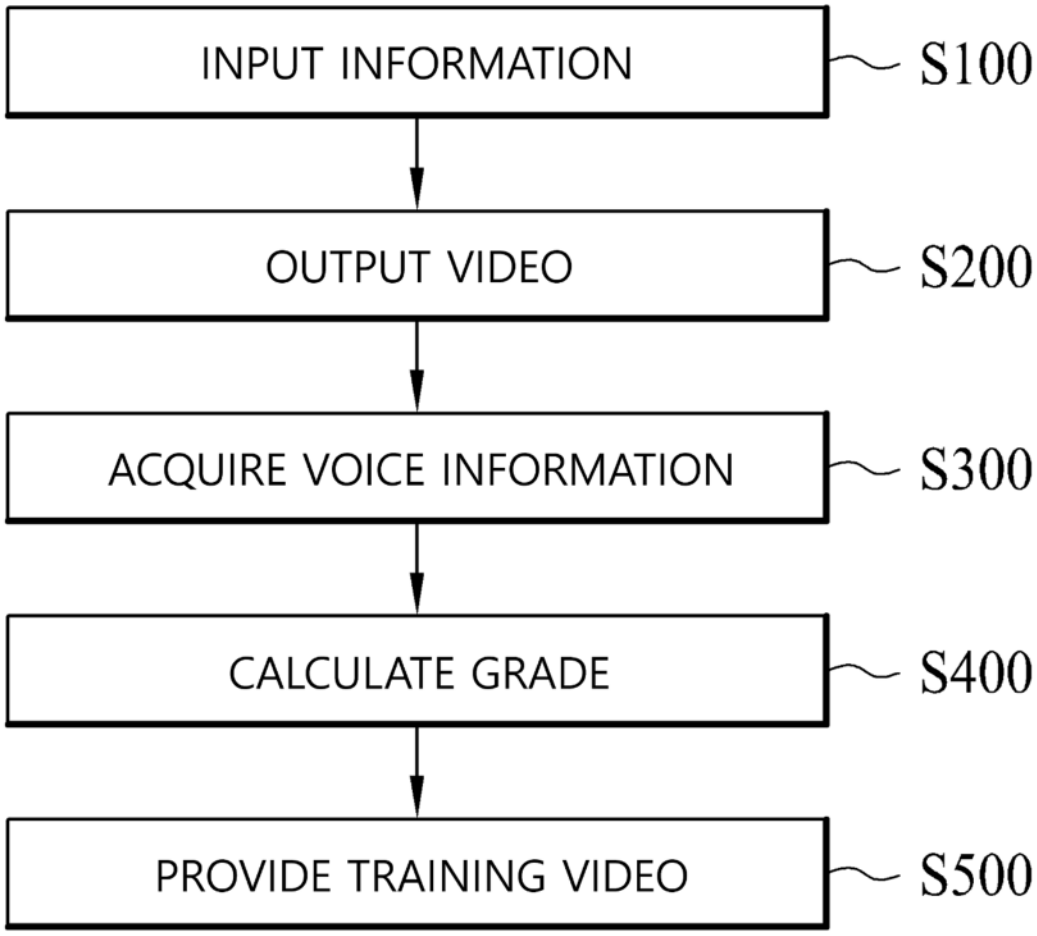

INPUT INFORMATION
S100
OUTPUT VIDEO
S200
ACQUIRE VOICE INFORMATION
S300
CALCULATE GRADE
S400
PROVIDE TRAINING VIDEO
S500

Fig. 11

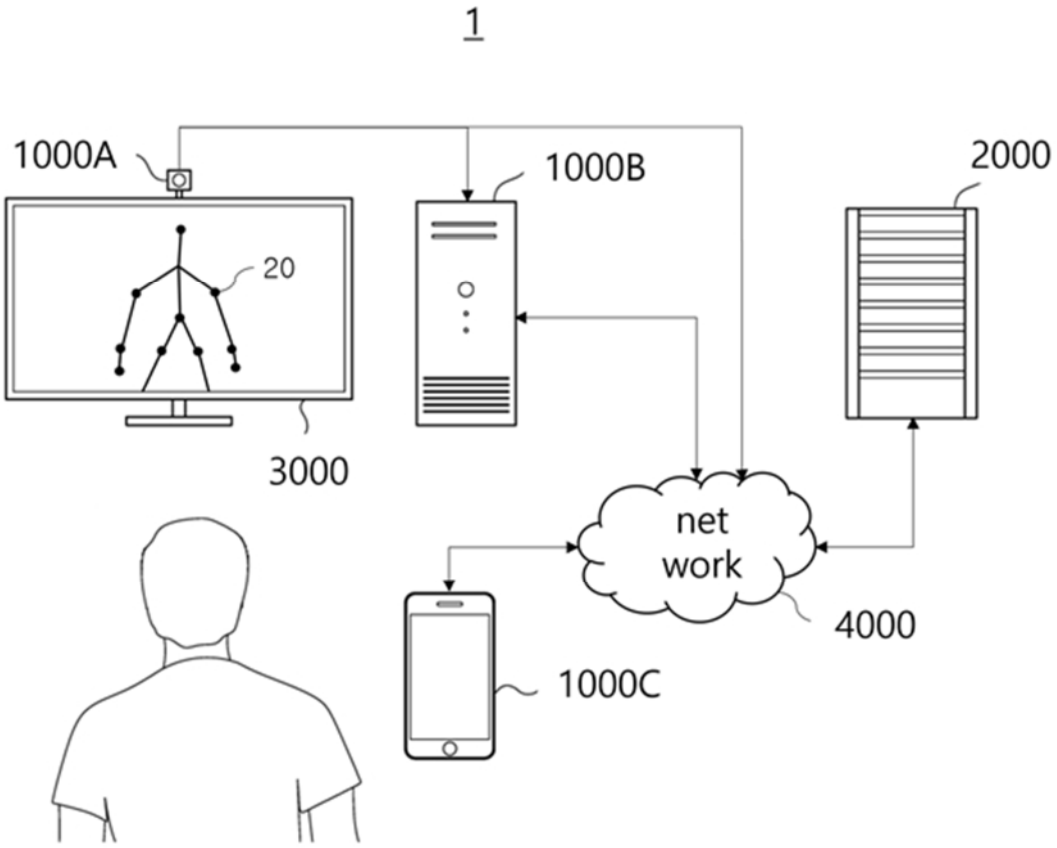


Fig. 12

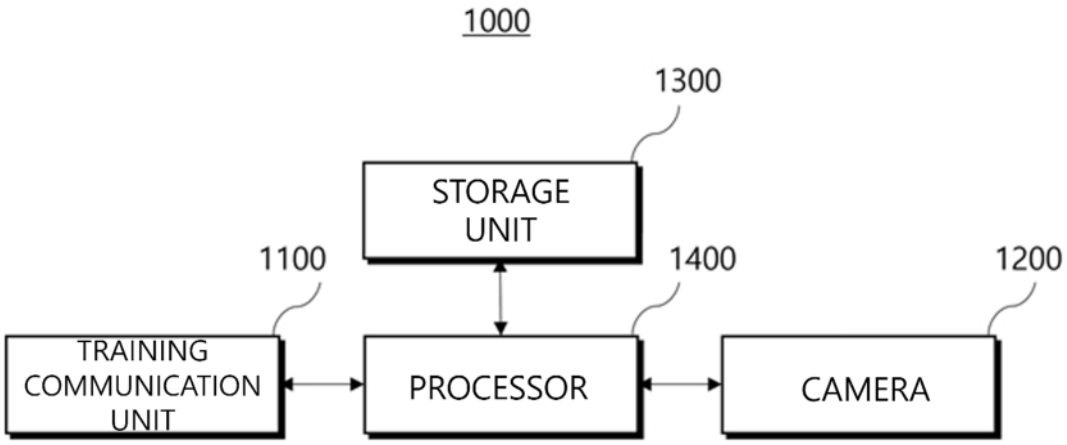

1000
1300
STORAGE UNIT
1100
1400
1200
TRAINING COMMUNICATION UNIT
PROCESSOR
CAMERA

Fig. 13

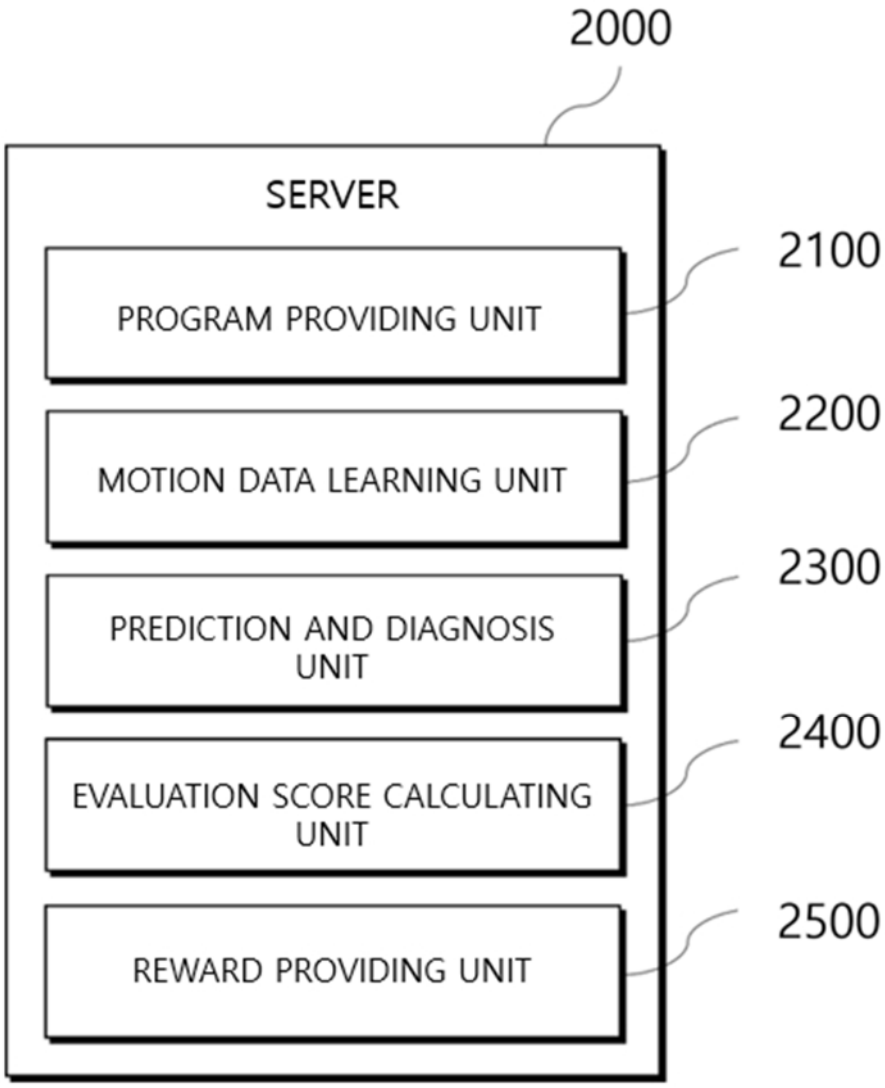

2000
SERVER
PROGRAM PROVIDING UNIT
2100
MOTION DATA LEARNING UNIT
2200
PREDICTION AND DIAGNOSIS UNIT
2300
EVALUATION SCORE CALCULATING UNIT
2400
REWARD PROVIDING UNIT
2500

Fig. 14

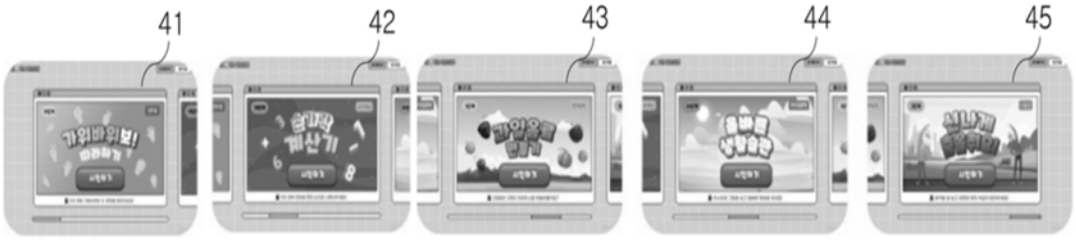
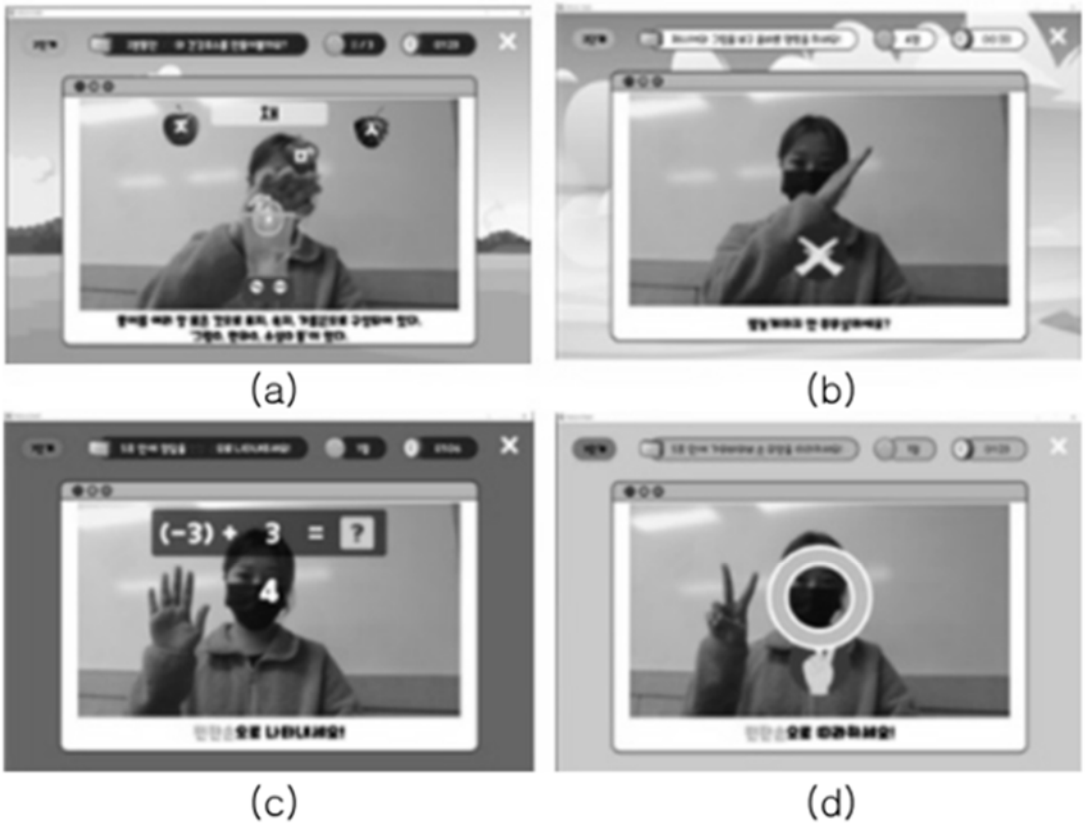
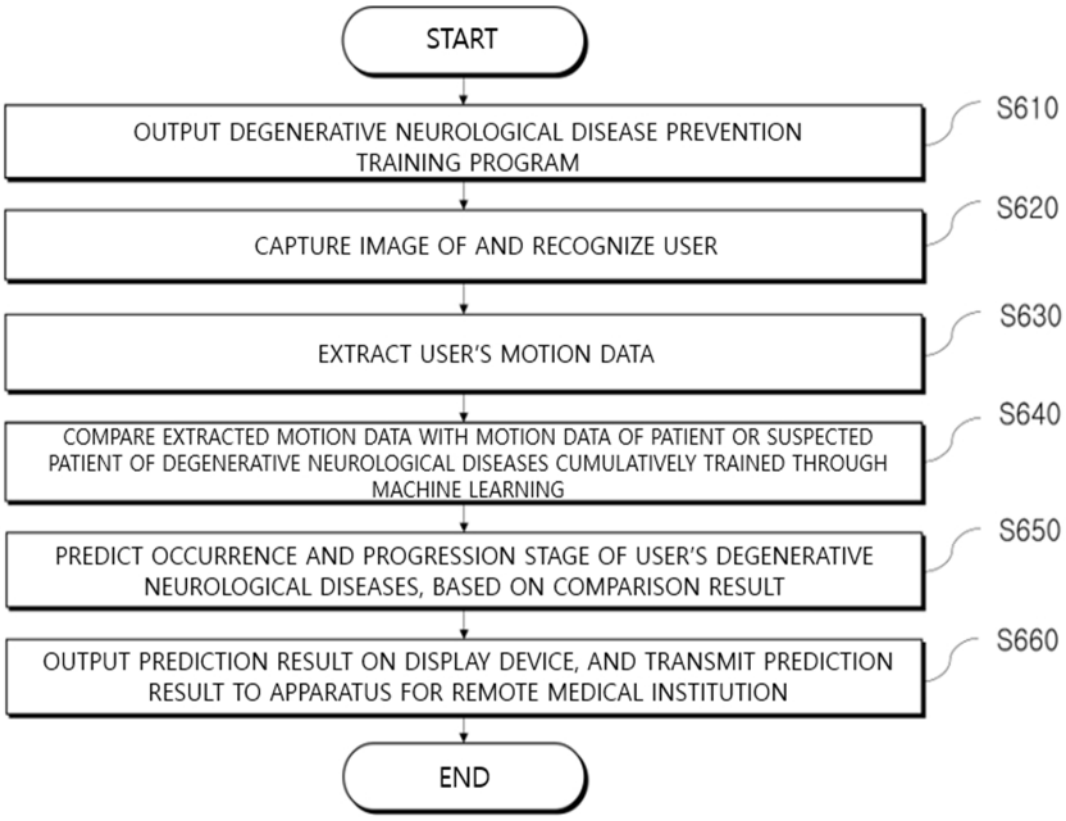


Fig. 15



(a) (b) (c) (d)

Fig. 16


START
OUTPUT DEGENERATIVE NEUROLOGICAL DISEASE PREVENTION TRAINING PROGRAM
S610
CAPTURE IMAGE OF AND RECOGNIZE USER
S620
EXTRACT USER'S MOTION DATA
S630
COMPARE EXTRACTED MOTION DATA WITH MOTION DATA OF PATIENT OR SUSPECTED PATIENT OF DEGENERATIVE NEUROLOGICAL DISEASES CUMULATIVELY TRAINED THROUGH MACHINE LEARNING
S640
PREDICT OCCURRENCE AND PROGRESSION STAGE OF USER'S DEGENERATIVE NEUROLOGICAL DISEASES, BASED ON COMPARISON RESULT
S650
OUTPUT PREDICTION RESULT ON DISPLAY DEVICE, AND TRANSMIT PREDICTION RESULT TO APPARATUS FOR REMOTE MEDICAL INSTITUTION
S660
END