Although positive effects are achieved by cContinuously performing preventive care and other health activitiescare activities can have a positive impact,; however, performing the same activities every day daily can be a also result in mental strain. Therefore, research has been performedconducted on maintaining ways to persistently the motivationmotivate of users and encourageing them to use exercise systems by incorporating games wherein which the users can perform voluntary activities. On the other hand, the The Kinect system developed by Microsoft is able to can recognize people's posturesa person's posture and the three-dimensional coordinates of their joints,. and work has been done to Rresearch and developdevelopment of systems that use a Kinect to measure hand and foot movements for rehabilitationrehabilitative purposes has been conducted. Since the Kinect can detect real-world human postures; therefore, it can also be used to recognize antagonistic exercises. Recently, severalSeveral Kinect-based commercial rehabilitation systems have recently been developed. FormerlyPreviously, we designed and developed a prototype lower-limb chair exercise support system usingthat uses a depth image sensor, and evaluated the its performance and usability. The system recognizes and evaluates exercises based on 3D uses three-dimensional position data and joint angles for skeletal and RGBred–green–blue data obtained from the Kinect sensor. In this to recognize and evaluate exercises. In the present study, using a depth sensor, we designed, implemented, and evaluated a system that supports antagonistic exercise using a depth sensor. It. The system recognizes exercises by using skeletal data aboutregarding the user's joints acquired from a depth sensor, and evaluates the user's exercises to provide real-time feedback. This system uses anAn audiovisual display is used to explain the exercise procedures to the user, and displays user'splays their real-time video to encourage the user to perform the exercises. Itexercise. The system also has a rhythm game function whereby the user can exercise in time with music. This system is provided with fourFour types of exercise are provided with this system: upper-/lower-limb

Comment [A1]: The text alongside has been revised for conciseness.

Comment [A2]: In American English, a comma (called serial or Oxford comma) is inserted before "and" in a series of three or more items.

Comment [A3]: When a compound adjective is used before a noun, it is connected using a hyphen. At this instance, the compound adjective "real-time" modifies the noun "video."

SAMPLE

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antagonistic movement, upper-limb left/right antagonistic movement, rock/paper/scissors using both arms and both legs, and duple-/triple-time exercises.

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