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題名	Digital Game Devices with Physiological Measurement; For Games as Future Healthcare Bases
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概要	<p>Physiological measurements can give useful information about diseases and health in medical field. While importance of detecting acute stage of disease by a measurement, long-term physiological measurement giving chronological information of health has been considered as a promising methodology for maintain one's health. However, sometimes, long-term continuous measurement by oneself has still been difficult without strong intervention by medical doctors. Achieving of habitualizing measurement must be dependent on subject's motivation in most cases. Besides this, we have developed physiological measurement by using sensors embedded into game devices such as VR display to assess mental information during playing. Here, it is considered that if physiological measurement would be combined with game devices and the measurement procedure become fully-automatic, the physiological parameters can be obtained automatically at every game playing. If this would be possible, the certain people (perhaps the so-called "Gamer") who play games daily would be automatically measured then huge amount of physiological data could be obtained. In this ideal case, the "Gamers" would become healthier or more easily maintain their health than ordinary people who would not play game daily. We call this paradoxical future outlook as "incorporating physiological measurement with gaming" and believe that this can be a possible health management methodology in the near future. In this concept, we have preliminary attempted to develop sensors, photoplethysmography; arterial cardiac pulse sensing that can be embedded in a VR headset and electrodes for electrocardiogram (ECG) formed onto gamepad to derive ECG during gaming. The result of the measurement is demonstrated and the concept of future health management with game device and game playing is discussed. Part of this work was supported by JSPS KAKENHI Grant Numbers 15H02798 and18K19844. And part of this work was also supported by student support by MISUMI corporation.</p>