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| Title | Walkaholic: An Internet-of-thing-based 6-Minute Walk Test Platform |
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Abstract

6-Minute Walk Test (6MWT) is a method to assess the functional capacity of patients with heart and lung diseases. A patient must walk the longest distance possible within 6 minutes while a physician will record the related data during the session for interpretation afterward. The walking sessions are usually done in medical institutions with prepared equipment and location. Therefore, performing the 6MWT at home either by the patients themselves or during home visits is cumbersome. Accordingly, to expand this limitation, ideas of performing the outdoor 6MWT have been proposed. This article introduced Walkaholic, an internet-of-things (IoT) - based 6MWT platform. The platform works as a combination of a portable device, cloud storage, and software application. This development aims to provide services, such as timing, data recording, and visualization as a tool for further studies and investigations of the outdoor 6MWT. The data, including GPS coordinates, pulse rate (PR), blood oxygen saturation (SpO₂), and perfusion index (PI), are recorded during sessions of the outdoor 6MWT and sent to the cloud storage server. The software application allows physicians to access the recorded data remotely. Additional data, for instance, 6-minute walk distance (6MWD), walking speed, and acceleration, can be calculated as outcomes of the recorded data that give the physicians more information for accurately interpreting the results of the outdoor 6MWT.