

Long-Term Sitting Posture Identifier Connected with Cloud Service

Authors : Manikandan S. P., Sharmila N.

Abstract : Pain in the neck, intermediate and anterior, and even low back may occur in one or more locations. Numerous factors can lead to back discomfort, which can manifest into sensations in the other parts of your body. Up to 80% of people will have low back problems at a certain stage of their lives, making spine-related pain a highly prevalent ailment. Roughly twice as commonly as neck pain, low back discomfort also happens about as often as knee pain. According to current studies, using digital devices for extended periods of time and poor sitting posture are the main causes of neck and low back pain. There are numerous monitoring techniques provided to enhance the sitting posture for the aforementioned problems. A sophisticated technique to monitor the extended sitting position is suggested in this research based on this problem. The system is made up of an inertial measurement unit, a T-shirt, an Arduino board, a buzzer, and a mobile app with cloud services. Based on the anatomical position of the spinal cord, the inertial measurement unit was positioned on the inner back side of the T-shirt. The IMU (inertial measurement unit) sensor will evaluate the hip position, imbalanced shoulder, and bending angle. Based on the output provided by the IMU, the data will be analyzed by Arduino, supplied through the cloud, and shared with a mobile app for continuous monitoring. The buzzer will sound if the measured data is mismatched with the human body's natural position. The implementation and data prediction with design to identify balanced and unbalanced posture using a posture monitoring t-shirt will be further discussed in this research article.

Keywords : IMU, posture, IOT, textile

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