**Mar Athanasius College of Engineering**

**Department of Computer Applications**

**Project Synopsis**

**Topic: Human Activity Recognition (HAR)**

**References: Bulbul, E., Cetin, A., & Dogru, I. A. (2018). Human Activity Recognition Using Smartphones. 2018 2nd International Symposium on Multidisciplinary Studies and Innovative Technologies (ISMSIT). doi:10.1109/ismsit.2018.8567275**

**Wang, H., Zhao, J., Li, J., Tian, L., Tu, P., Cao, T., … Li, S. (2020). Wearable Sensor-Based Human Activity Recognition Using Hybrid Deep Learning Techniques. Security and Communication Networks, 2020, 1–12**

**Agarwal, P., & Alam, M. (2020). A Lightweight Deep Learning Model for Human Activity Recognition on Edge Devices. Procedia Computer Science, 167, 2364–2373**

Human activity recognition (HAR) is an ability to interpret human body gestures or motion via sensors and determine human activity or action. It is based on an inertial measurement unit (IMU) has become the de facto method for continuously monitoring not only what human beings are up to but also in monitoring the activities of devices, machine parts, pets, and others. This has made HAR based on IMU sensors a hot area for research. Not to mention that these maintain high levels of privacy and comfort for the user. To understand human behavior and intrinsically anticipate human intentions, research into human activity recognition HAR) using sensors in wearable and handheld devices has intensified. The ability of a system to use as few resources as possible to recognize a user’s activity from raw data is what many researchers are striving for attention.

Human activity analysis is one of the most important problems that has received considerable attention from the computer vision community in recent years. It has various applications, spanning from activity understanding for intelligent surveillance systems to improving human-computer interactions. Recent approaches have demonstrated great performance in recognizing individual actions. However, in reality, human activity can involve multiple people, and to recognize such group activities and their interactions would require information more than the motion of individuals

Most human daily tasks can be simplified or automated if they can be recognized via the HAR system. Typically, the HAR system can be either supervised or unsupervised. A supervised HAR system required some prior training with dedicated datasets while an unsupervised HAR system is configured with a set of rules during development. HAR is considered an important component in various scientific research contexts i.e. surveillance, healthcare, and human-computer interaction (HCI).

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