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## TRACKING THE MOVEMENT OF PATIENTS INDOORS IN HEALTHCARE ENVIRONMENTS

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There is a substantial amount of work in determining the location or activity of an individual over time inside a building with wireless tracking. Movement detection is important for many scenarios such as tracking patients at home. Location tracking techniques can be classified into two broad categories; active localisation and passive localisation. The distinguishing factor is the participation of the tracked individual. In a passive system, the user is not required to participate, i.e. the system can track them without any need for an electronic device to be carried or attached which sends out signals to help deduce their location. In an active system, an electronic device is carried. Device Free Passive Localisation (DfPL) approaches can identify human presence by monitoring variances of the signal strength in wireless networks. This is since human body contains about 70% water and it is known that waters resonance frequency is 2.4 GHz. An indoor wireless positioning system consists of at least two separate hardware components: a signal transmitter and a measuring unit. The latter usually carries the major part of the system intelligence. Mobile devices face many challenges that are intrinsic to mobility and are unlikely to be overcome easily. Wireless connectivity is highly variable and mobile devices must rely on limited energy sources. These issues often significantly hinder implementations of mobile LAS. The core concepts used to locate an object are explained in the next section which is then followed by a review of current location detection technologies which may be used to implement a LBS.

We present an overview of an extensible indoor location determination framework. It utilizes Bluetooth beacons for active positioning which can determine location of individuals. These beacons can use either ibeacon or Eddystone standards. The framework also facilitates device free passive localisation techniques for determination of activities performed in each location. The Bluetooth active localisation hardware can easily be substituted with another active technology such as WiFi. The framework allows the easy updating of new locations, beacons and activities which are all important aspects of the future Internet of things and especially the application within for instance homes to allow a less intrusive means of monitoring patients performing activities of everyday life so that they can remain living a more independent life.

## "MORBIDITY PATTERN AMONG BOATMEN IN VARANASI, INDIA"

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Water tourism is the second most important industry in Varanasi, the spiritual capital of India. Effort was made to study the morbidity pattern of boatmen to find what type of illness they suffered the most and whether there was any association between type of boat and morbidity. A Cross-sectional retrospective study was carried out after pilot survey. Data was collected during 2 months period by Convenience and Purposive sampling. All Descriptive statistics were calculated. Chi-square test is used to assess association between type of boat-morbidity and area of work-morbidity. 164 boatmen was interviewed(41.5% between age 21-30),74.4% boats hand-driven.36.6% faced illness due to profession and 56.1% suffered from common cold and flu. 41.5% suffered during summer. Statistically significant association between type of boat and whether a boatman is suffering due to profession, chi-square 0.016<0.05. Boatmen who had hand driven boats, found to be fit -they considered this as a healthy exercise, those with motor driven boats suffered more due to profession. (60%). Motor boats emitted smoke and therefore the boatmen developed bronchial complications. They also complained that due to pollution, accumulation of plastic down the river, dirt gets stuck in the motor and they have to get down in the water to fix the problem, remain wet in the boat until their destination is reached. The most common illness is common cold. Statistically significant association between type of boat and morbidity among boatmen was found.