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Smart Home using MEMS Sensors and Ambient Intelligences (SAHOMASI)

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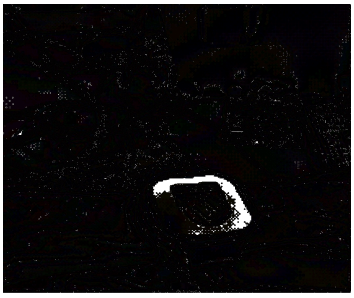

Figure 1: New Wearable circuit with Accelerometer

Smart home is a home that has a set of electrical appliances connected to a network that can be remotely controlled, accessed and monitored. Smart home normally is used to fine-tune human's daily life. However, the main problem is when different devices such as sensors and electrical appliances produced by different manufacturers being used in a smart home. Therefore, it is important to have a standardized communication protocol for interconnecting and remotely controlling those devices to ensure data can be transmitted to each other. This project aims to present the Smart Home using MEMS Sensor and Ambient Intelligence (SAHOMASI) ; an IoT-based platform infrastructure for Smart Homes with an ECHONET- Lite middleware to interconnect devices, people, systems and information resources together with ambient intelligences to improve the well-being of the elderly and disabled people. The focus is to facilitate the efficient wellness care and assisted living systems in Smart home environment and to disseminate and promote knowledge about the ECHONET standard specification. The features of the system includes monitoring smart home occupants daily lifestyle activities (ADL), analysed and predict one's movement and activities behavior using Articificial Intelligences algorithms and presenting notifications and alerts based on anomalous activities detected. In addition, a new wearable circuit (Figure 1) has been designed aiming to detect any fall events happening in the home. In a nutshell, sensors such as motion sensor (HC SR501) and pressure sensor (Force Sensitive Resistor 0.5") has been used in this project to monitor occupant's activities while Wearable watch built in with accelerometer and PIR motion is used to detect fall event.

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