ECE 659 Project Abstract – Group 27

Implementation of Smart Home Sensor Networks using Amazon SNS

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Smart home monitoring and automation are used to maintain a comfortable living condition. This can be achieved due to the recent advancement in network technologies. There are numerous types of comfort requirements for humans in their houses. The most important of these categories is thermal comfort, which is related to temperature and humidity, followed by visual comfort, which is related to light, hygienic comfort, which is related to air quality, and finally, safety comfort which is related to smoke detection. Protection from trespassers and intruders is also one of the important aspects related to home security. To keep these characteristics within an acceptable range, a system can be built up to monitor them. Making the house smart also entails allowing for the intelligent automatic execution of many commands following the analysis of the collected data. The Internet of Things can be used to automate processes (IoT). This offers the occupant access to specific data in the house as well as remote control of some parameters. In this project, we will be implementing a Smart Home sensor network that encompasses sensors like Light-dependent sensors, oxygen (O2) sensors, humidity sensors, Temperature sensors, and smoke detectors. In addition to this, we will also be incorporating a face recognition system to prevent illegal trespassing of intruders. The sensor data can be used to monitor the conditions which can be used to detect abnormalities in the system. If any abnormalities are detected by the system, we will be notifying the resident through **Amazon Simple Notification Service (SNS).** The simulation of our sensor networks would be carried out in **OMNET++** environment. Face recognition system and processing of data, notifying the user in case of any abnormality will be done using python.