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A project report on

"SeRaPH: Sensor based Radio assisted Pervasive Helper"

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Abstract

Computers are no longer single, stand-alone machines. They are now networks of lot of sensors and nodes that control behavior and functions of multiple machines. Connectivity everywhere and every time is the unique feature of such computers.

A sensor network is a collection of sensor nodes which coordinate to perform some specific action. Each sensor node is capable of only a limited amount of processing. But when coordinated with the information from large number of other nodes, they have the ability to measure a given physical environment in great detail.

Automation or automatic control is the use of various control systems for operating equipment. The biggest benefit of automation is that it saves labor; however, it is also used to save energy and materials and to improve quality, accuracy and precision. The proposed system pairs the switches with the device and controls various environmental conditions.

A home automation system integrates electrical devices in a house with each other. Devices may be connected through a computer network to allow control by a personal computer, and may allow remote access from the internet. Through the integration of information technologies with the home environment, systems and appliances are able to communicate in an integrated manner which results in convenience, energy efficiency, and safety benefits.

The Just A Rather Very Intelligent System (JARVIS) group built a program to interface with the internet and control a network of sensors. The entire system is DOS based and simple to handle but the system usually requires a lot of processing and extensive use of power. This leads to bulk and heavy losses.

The proposed system will have an adhoc network of sensors monitored by a single machine as server. Each sensor will be on a board with a processor that controls its operation. These small processors serve as nodes (smart) and hence the entire network will be single pervasive computer. It however is not requiring a connection to the internet to handle sensors but can access it on demand/requirement to provide different service to the user.