IoT: Sensor Enabled Robot For Personal Assistance (SERPA)

Abstract:

Computers are no longer single, stand-alone machines. They are now 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.

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 [IV].

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.

Keywords: Pervasive, sensor networks, JARVIS, automation;

The design and implementation of a system basically deals with the system’s control

flow and the interaction of the system with outside environment.

Team size: 4

Duration 3 months

Guides: Prof. Pruthvi Kumar

If divided, One team will build the sensor network and control system where as the other team will build the android interface with internet connectivity.

Hardware Components:

i.Arduino Uno Board.

ii. Relay.

iii. LM35-a precision IC temperature sensor.

iv.Light sensor.

v. Resistors.

vi. Omni Directional microphone.

vii. User Interface.

Reference: Sensor based pervasive System for user controlled automation. Dr. Khalid Nazim S.A. and Mr. Harsha S, International Journal of Embedded Systems, Robotics and Computer Engineering. Volume 2, Number 1 (2015).