

# ITSP : - 2015

## **Abstract**

### **SLOT 2**

*PROJECT NAME:-SMART ROOM*

#### **GROUP MEMBERS :**

1.Nischal Agrawal

- 14D070049

2.Shantanu Choudhary

- 14D070044

3.Swapnil Bembde

- 14D070034

#### **IN COLLABRATION WITH OTHER TEAM**

1.Aman Dixit

- 14D070053

2.Ritvik Mathur

- 14D070018

## PROJECT IDEA:-

Our project idea is to make a model of a smart room. Our idea aims to improve and ease the life of disabled people and to increase the comfort of normal people. This project will demonstrate the next generation of home automation technology, speech activated appliances. Imagine being able to control the lights in a room, or the temperature of your home with a simple spoken command. Imagine the security of having your home recognize and respond to your voice alone. This project will explore these ideas by developing voice recognition software, and then demonstrating that software through a basic implementation of a voice recognition system on readily available electronic components and hardware. The system will respond to a list of defined spoken commands, and control two basic household appliances, a lamp, and an LCD screen, mimicking a thermostat.

We plan to do so by getting rid of tedious work of consistently using the switch boards. Our life would be much easier if all the daily appliances would just be controlled by our voices or by our smartphones. For this we are planning to make a small model of a room consisting of some basic and daily appliances such as fan, light, etc. which would be controlled by our voices and our smartphones.

To implement our above stated idea we would be doing android interfacing and voice recognition.

We are planning to make an app in android which will link all the appliances with our smartphone, thus controlling them with our smartphone. This app will also provide us the record of the electricity consumed by our appliances.

We plan to communicate the appliances via Bluetooth. If possible we would also try to communicate the appliances via Wi-Fi. If achieved it would open up the many possibilities of accessing these appliances even from distance.

By Voice recognition we aim at controlling these appliance with some registered voices.

## Requirements:-

1. Speech recognition interface.
  - A database
  - This database serves as the main point of comparison. When an input is directed to the algorithm, the algorithm compares it to what is contained in the database (discussed below) using an algorithm (discussed below) that maximises accuracy while minimising computing time.
  - Input
  - Input in this case comes in the form of a microphone connected through a computer to MATLAB.
  - Algorithm for comparison
  - As the main computing point, the algorithm dictates the speed and accuracy for the whole system. For example, a point by point comparison of the input to the database would be costly in terms of time and be highly inaccurate. Much work has been done to find an algorithm which provides the benefits required to make a practical speech recognition system. Algorithms are listed below.
2. Bluetooth receiver.
3. Android development kit and an android device.
4. Microphone
5. Some electronic devices such as LED, motors, opamps, transistors.

## **Work Division:-**

We would be collaborating with another team. This whole project is broken into two modules. One team would be working on voice recognition and other team would be working on android interfacing. At the end both the modules will be collaborated.

Week 1 (18 May-24 May):-

- Mechanical Module
- Test Circuits
- Studying Android interfacing
- Studying voice recognition

Week 2(25 May-31 May):-

- Database Construction:-Storing voice commands of team members for the desired operation.
- Operate on Fourier transform.
- Initiating coding for voice recognition.
- Start working on android interfacing.

Week 3(1 June – 7 June):-

- Developing the complete code
- Establishing the working android app

Week 4(8 June – 14 June):-

- Integrating the all the modules completed by different team members
- Testing and debugging the code

Week 5(15 June – 21 June):-

- Applying the work done in real life.
- Backup if anything fails.

Week 6(22 June -28 June):-

- Testing future prospects

- Finishing Touches
- Documentation and submission

### **Workshops Needed**

- Android Interfacing
- Voice recognition
- Matlab Sessions

ITSP