

Group 9 POSTER:



# VOICE CONTROLLED LIGHTING SYSTEM

Alicia Pavan Kevin He Yuchen Ding Haining Yu Yifan Chen

Simon Fraser University - Engineering Capstone Project

## OBJECTIVE

The Light Matters' Team goal is to design a smart voice controlled lighting system to make the target users' life more convenient and enjoyable at home. With the LightWave System people will have the ability to control any light inside their homes with an easy voice command.

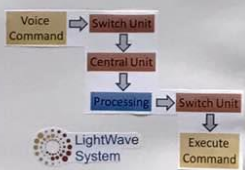
## THE PROBLEM

- There are 57 million Americans with disabilities and not enough smart home systems to suit all their needs
- Smartphone dependency on most available systems in the market
- Common families cannot afford existing systems

## PROPOSED SOLUTION

Server-client architecture: multiple switch units and a single central unit. Every room can be seen as a switch unit, and the central unit acts like the server of the system that executes the commands. The system is designed for the elder, disabled people and common families that need the benefits of a responsive voice-controlled lighting system.

- Using Radio Frequency Signals.
- Voice command is sent from Switch to Central
  - Central processes and sends instruction to Switch



## THE SWITCH UNIT

- MAX9814 (microphone module): microphone-amplifier with great and clean signal to work with for command processing
- RF Link Transmitter/Receiver 434MHz (transmitter/receiver): low-cost transmitter/receiver module with great performance
- Arduino MICRO (Microcontroller): AVR based microcontroller with great cost performance and enough processing power

## THE CENTRAL UNIT

- Arduino UNO (central processor): powerful microcontroller which is exponentially easier and faster to prototype, and perfectly supports the voice recognition module
- EasyVR SHIELD 3.0 (Voice Recognition Module): multi-purpose speech recognition module designed to add versatile, robust and cost effective speech and voice recognition capabilities to virtually any application

## FUTURE WORK

- Finding solutions for possible radio interference
- Reducing costs of the final prototype to make the system more affordable
- Providing a more flexible user interface



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Contact: [tha46@sfu.ca](mailto:tha46@sfu.ca)