**HOME AUTOMATION**

**INTRODUCTION**

This project revolves around creating a home automation system prototype with the main focus being the ability to control lighting the bulbs using claps and regulating the climate in the house automatically using a temperature sensor that triggers the fan. The system consists of a fan, a temperature and humidity sensor and a central device. The central device is a microcontroller, in this case,an Arduino Mega that controls the temperature sensor which in turn triggers the fan to regulate climate in the house as well as the lighting of the bulbs.

**OBJECTIVES**

* This project aims to develop a prototype of a product capable of regulating climate in the house automatically as well as lighting the house automatically by clapping.
* Due to the COVID pandemic, our prototype addresses a contactless method of switching on and off the lights in the house through clapping.
* With an emphasis on low cost and open source configurability, the end goal beyond this project would be a product that would hopefully allow people to connect to many other home devices through WiFi.

**LITERATURE REVIEW**

The project revolves around developing a home automation system which allows people to control household applications automatically. Currently, it is focused on being able to light and switch off lights in the house as well as regulating the temperature around your home automatically.. This is achieved by using a central device that connects to the lighting and cooling system in the house. When the DHT11 temperature and humidity sensor records temperatures higher than room temperature, the motor fan is triggered to regulate the temperature to room temperature and stops when the temperature has stabilised.

In the same system, due to the COVID pandemic, our prototype addresses a contactless method of switching on and off the lights in the house through clapping. Our micro-controller triggers the switching of bulbs in the house depending on the frequency of a clap.

**BILL OF MATERIALS**

* Arduino Mega Board
* LED’s
* Motor fan
* DHT11 temperature and Humidity sensor
* Breadboard
* Jumper wires

**METHODOLOGY**

**SCHEMATICS**

[**https://drive.google.com/file/d/1Aywy3lwuDgkv5sptuOaqpTUHGWOMOEd8/view?usp=sharing**](https://drive.google.com/file/d/1Aywy3lwuDgkv5sptuOaqpTUHGWOMOEd8/view?usp=sharing)

**FLOWCHART**

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**CONCLUSION**

**CHALLENGES**

In the case of the automated switching of lights, for an environment which is not serene, it could be quite difficult for the sensor to identify the required sound to actually switch on the light. This will require a higher threshold than that of the surrounding, leading to unnecessary noise in the house. The system also could not differentiate the type of sounds that are needed in the switching on and off of the lights, thus any sound within the house above the threshold will lead to flickering of lights within the house which is not quite pleasant.

**SCALABILITY**

This prototype could be configured into an Android application by switching our microcontroller with a microprocessor say Raspberry Pi or Node MCU. This would make it more automated since now it would be an IoT system that could be controlled from our smartphones through an Android application.