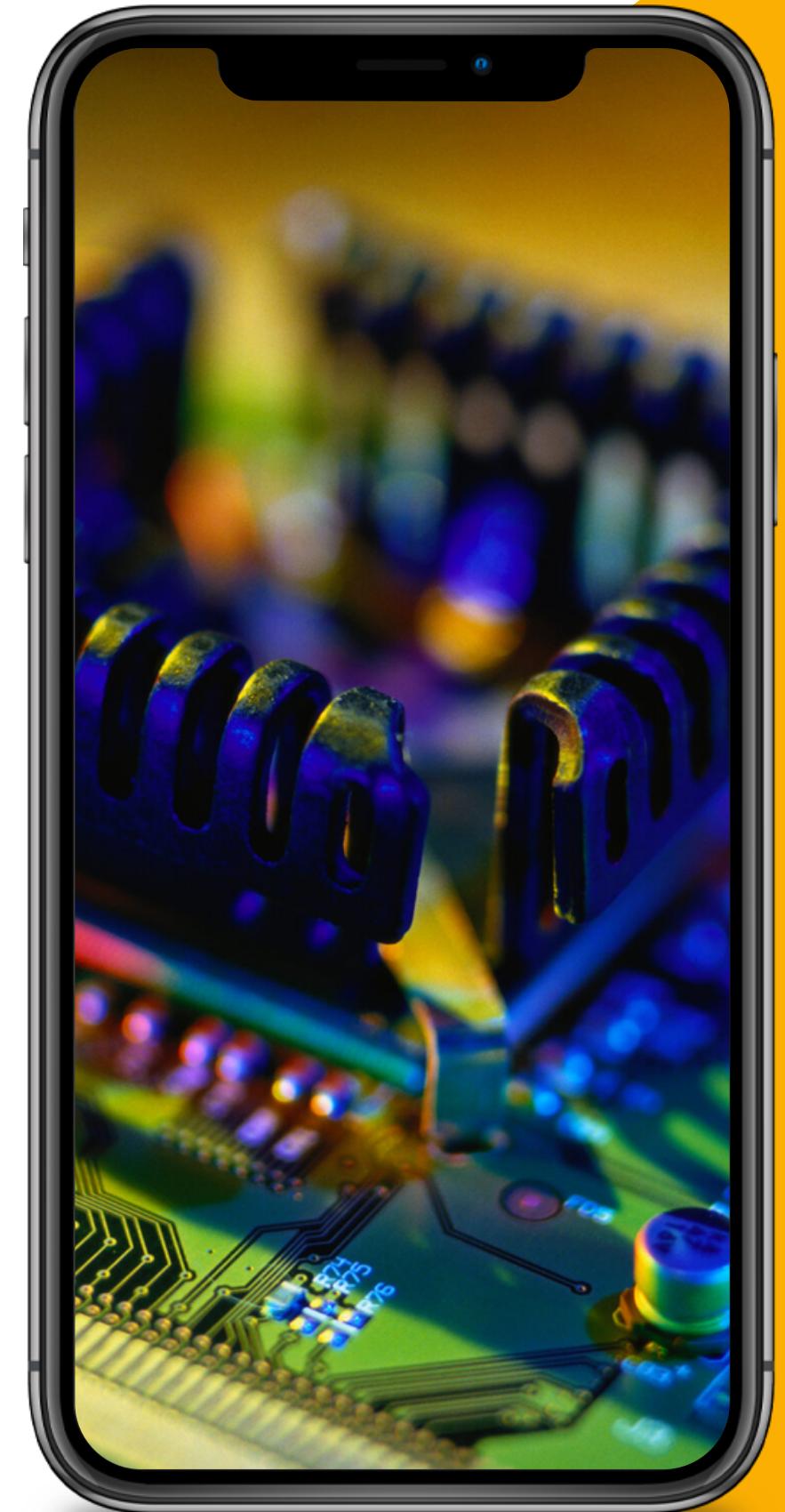


SEM 2

# Principles of measurements and sensors



# Group 11

## Members

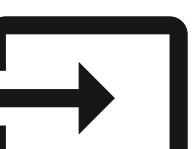
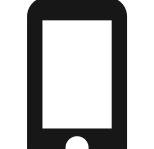
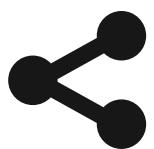
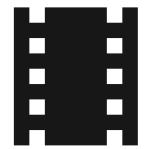
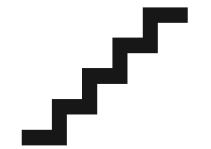
**Adithya Krishna**

**Adithya S Nair**

**Anoop Boby Manuel**

**Athul Gireesh**

**Navneeth Krishna**



# HOME AUTOMATION SYSTEM

# ABSTRACT



- This project implements a Home Automation System.
- By automating tasks that are done by humans, we can save time and energy.
- The clumsy attitude and is packed with the daily life routine sometimes puts us in a hurry, resulting in us being careless about the devices at home.
- Also, it'll have a significant impact on the electricity. In This regard, an automation system becomes relevant in these times.

# In this Presentation

Here's what we'll cover:



**INTRODUCTION**

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**SENSORS USED**

---

**CIRCUIT DIAGRAM**

---

**WORKING OF SYSTEM**

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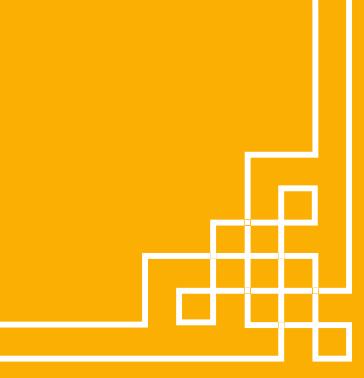
**SIGNAL CONDITIONING CIRCUITS**

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**CONCLUSION**

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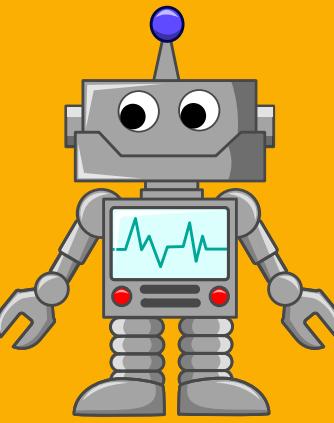
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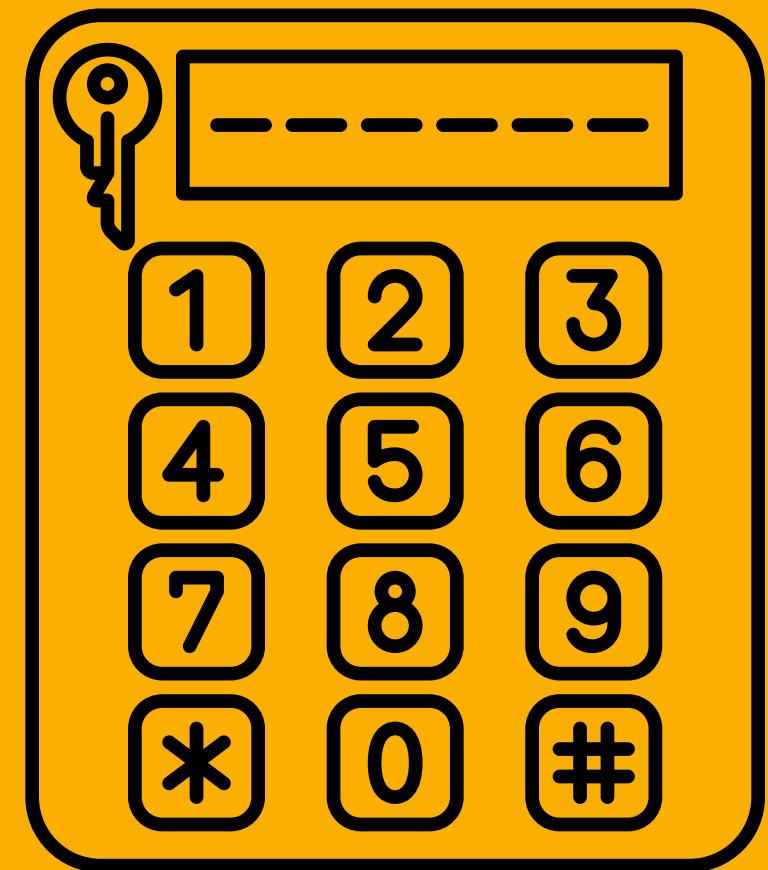
# INTRODUCTION

**Our project includes automation at different levels for better usability and energy conservation.**

**We Plan to implement :**



1. A Keypad Lock.
2. Automated door operation.
3. Automated Fan operation.
4. Automated lighting system for day and night.



**We have also added a gas sensor that can detect gas leakages and prevent total chaos.**



# SENSORS USED

1 PHOTORESISTOR



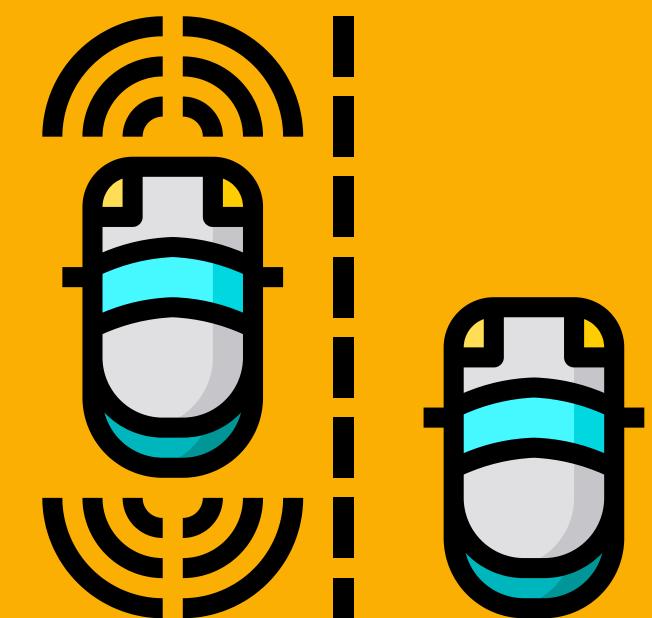
2 ULTRASONIC SENSOR



3 PIR SENSOR

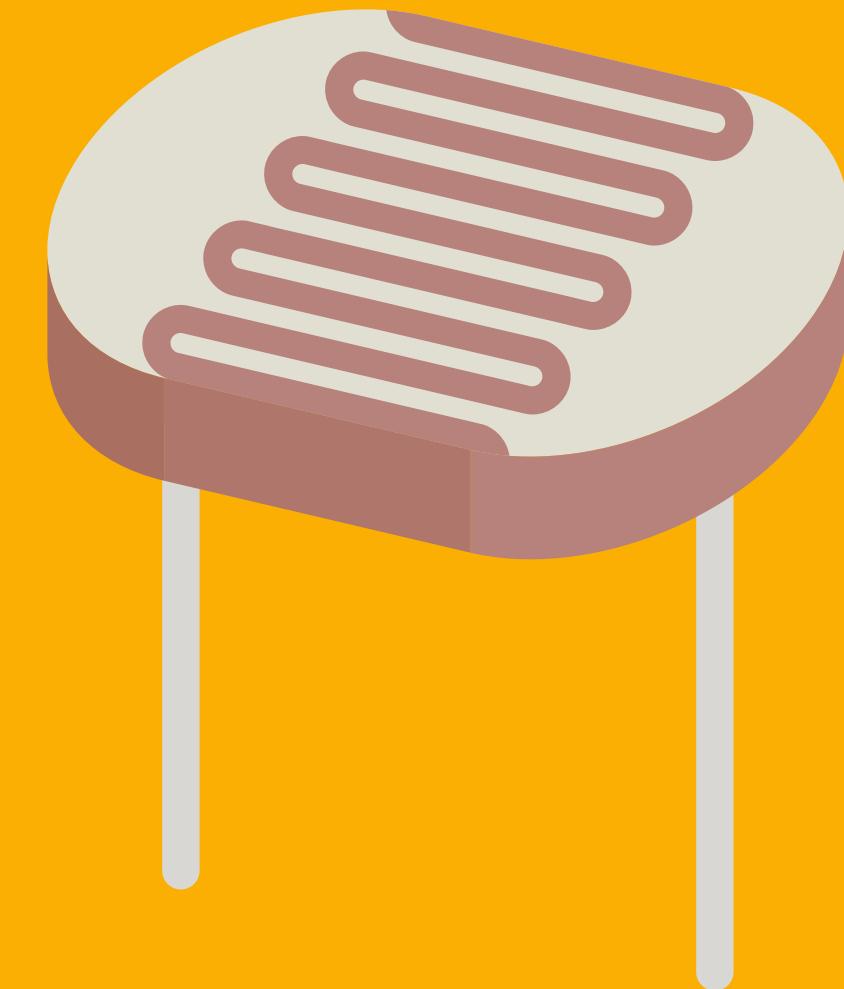


4 GAS SENSOR



# PHOTORESISTOR

The photoresistor is a component that has a (variable) resistance that changes with the light intensity that falls upon it. This allows them to be used in light-sensing circuits. photoresistors are also called Light Dependent Resistors (LDR).

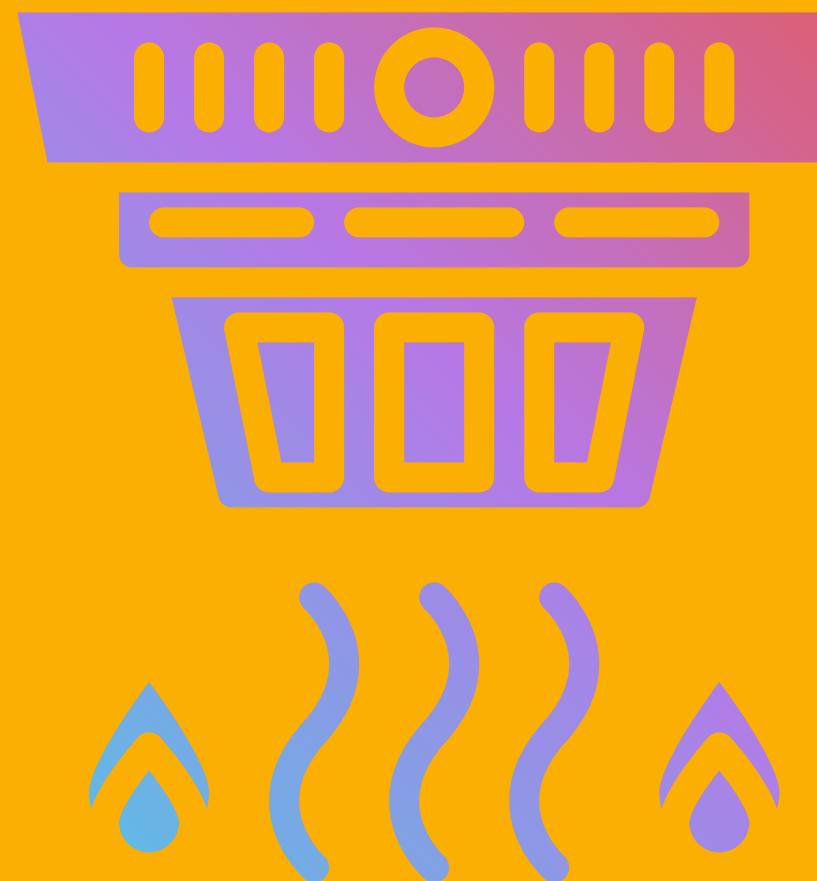


# ULTRASONIC SENSOR

An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves and converting the reflected sound into an electrical signal.

# PIR SENSOR

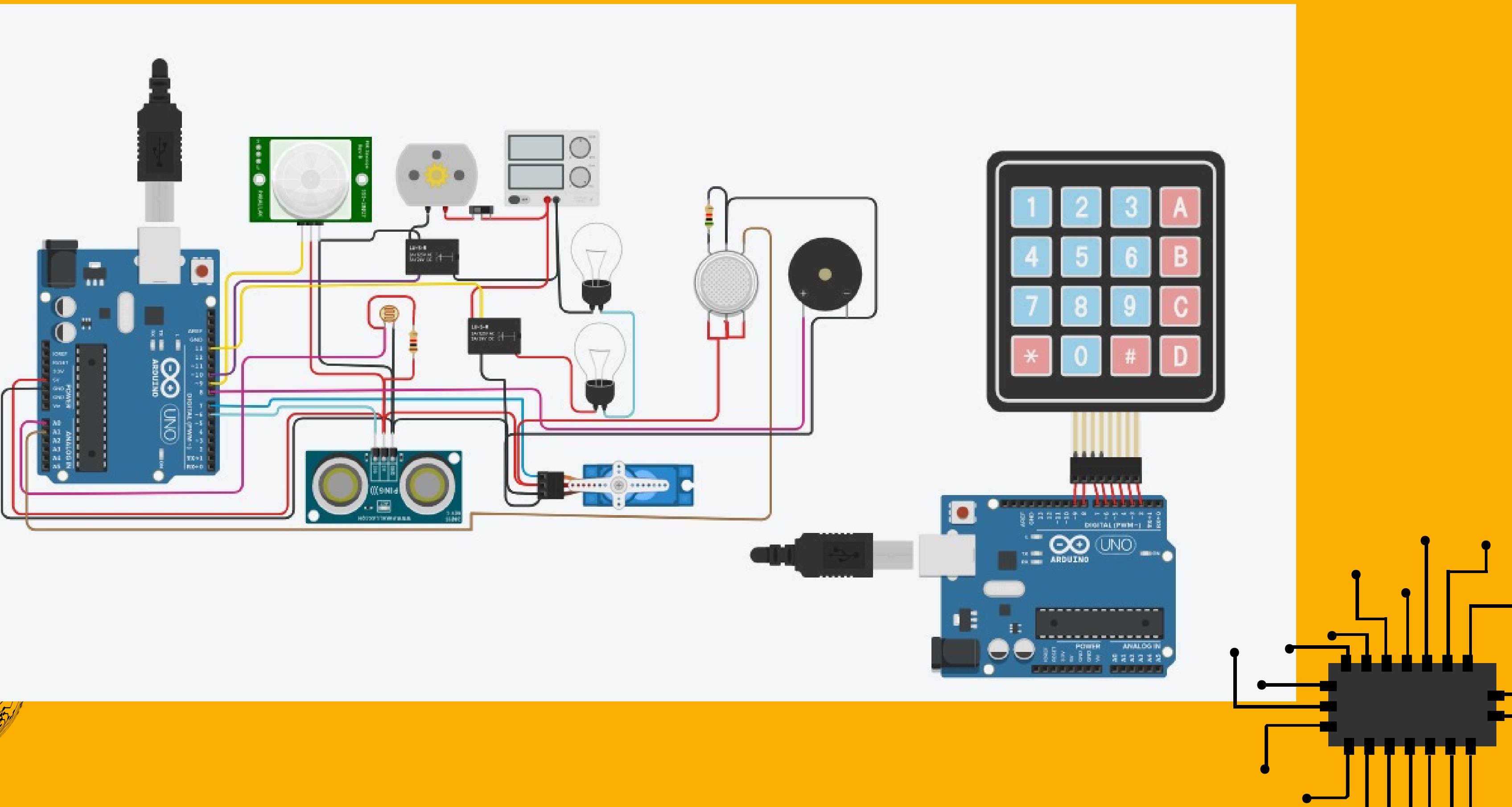
Passive infrared (PIR) sensors use a pair of pyroelectric sensors to detect heat energy in the surrounding environment. These two sensors sit beside each other, and when the signal differential between the two sensors changes (if a person enters the room, for example), the sensors will engage.



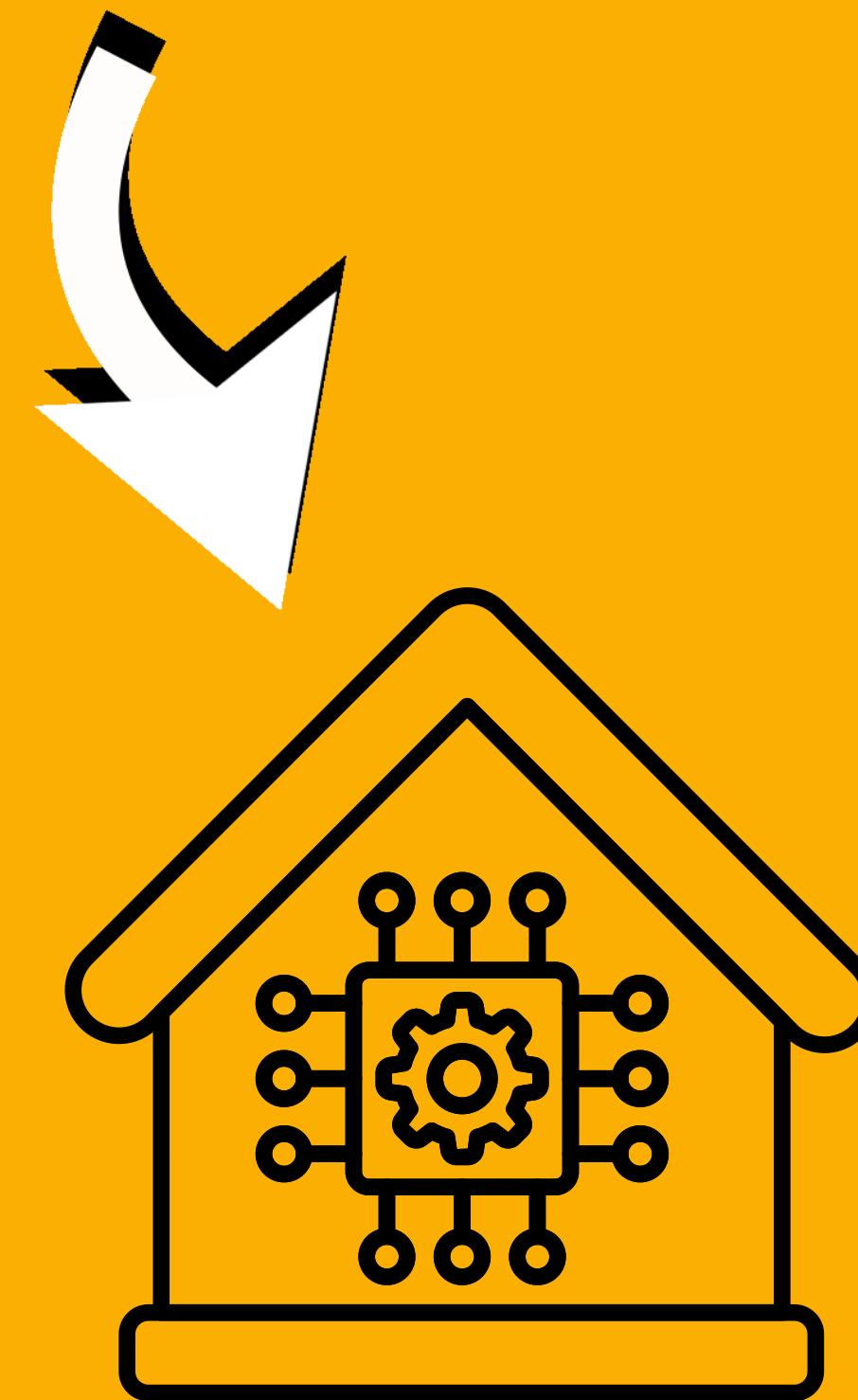
# GAS SENSOR

A gas detector is a device that detects the presence of gasses in an area, often as part of a safety system. A gas detector can sound an alarm to operators in the area where the leak is occurring, giving them the opportunity to leavee bit of body text

# CIRCUIT DIAGRAM



# WORKING OF THE SYSTEM

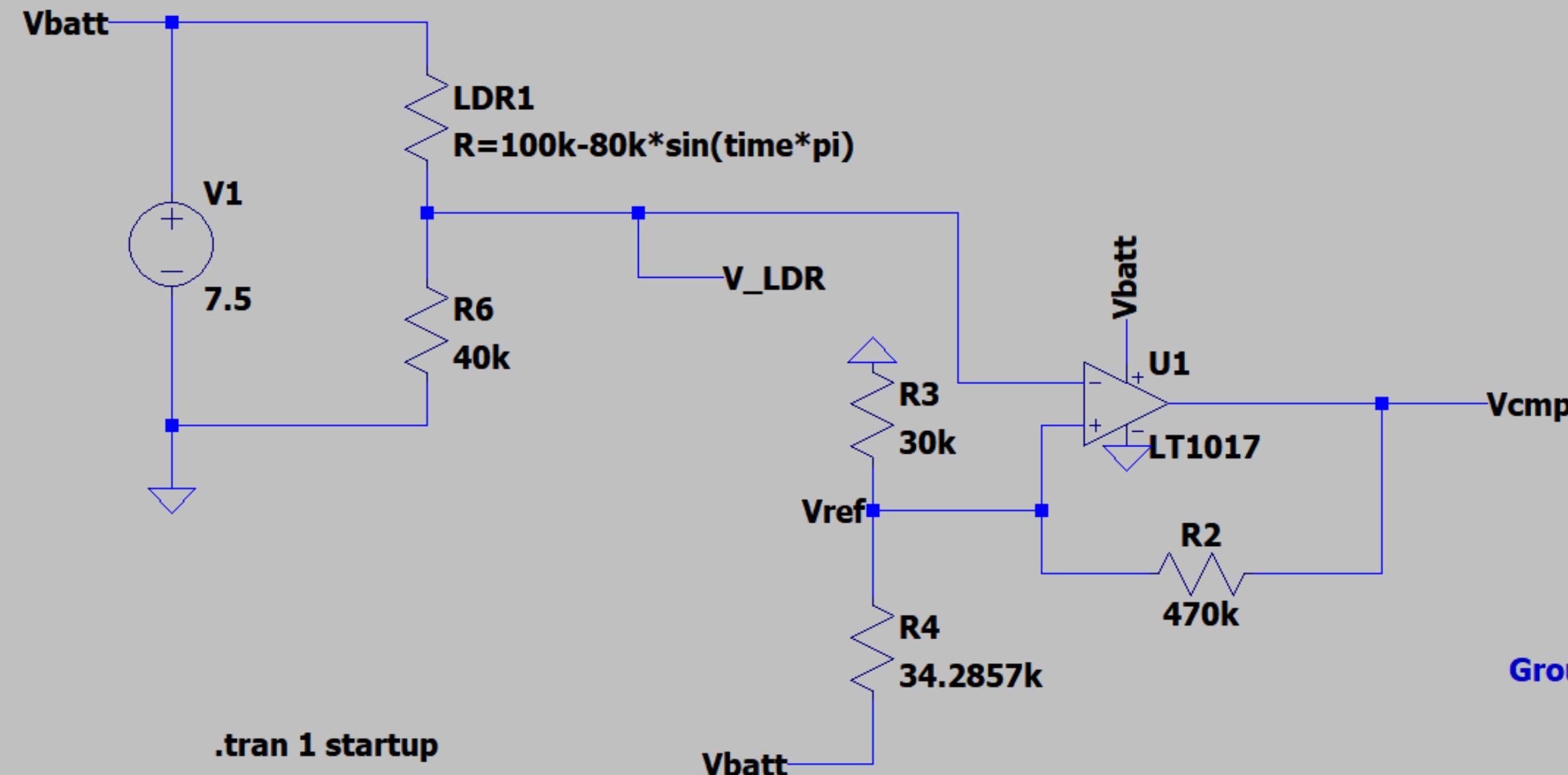


**Tinkercad Simulation**

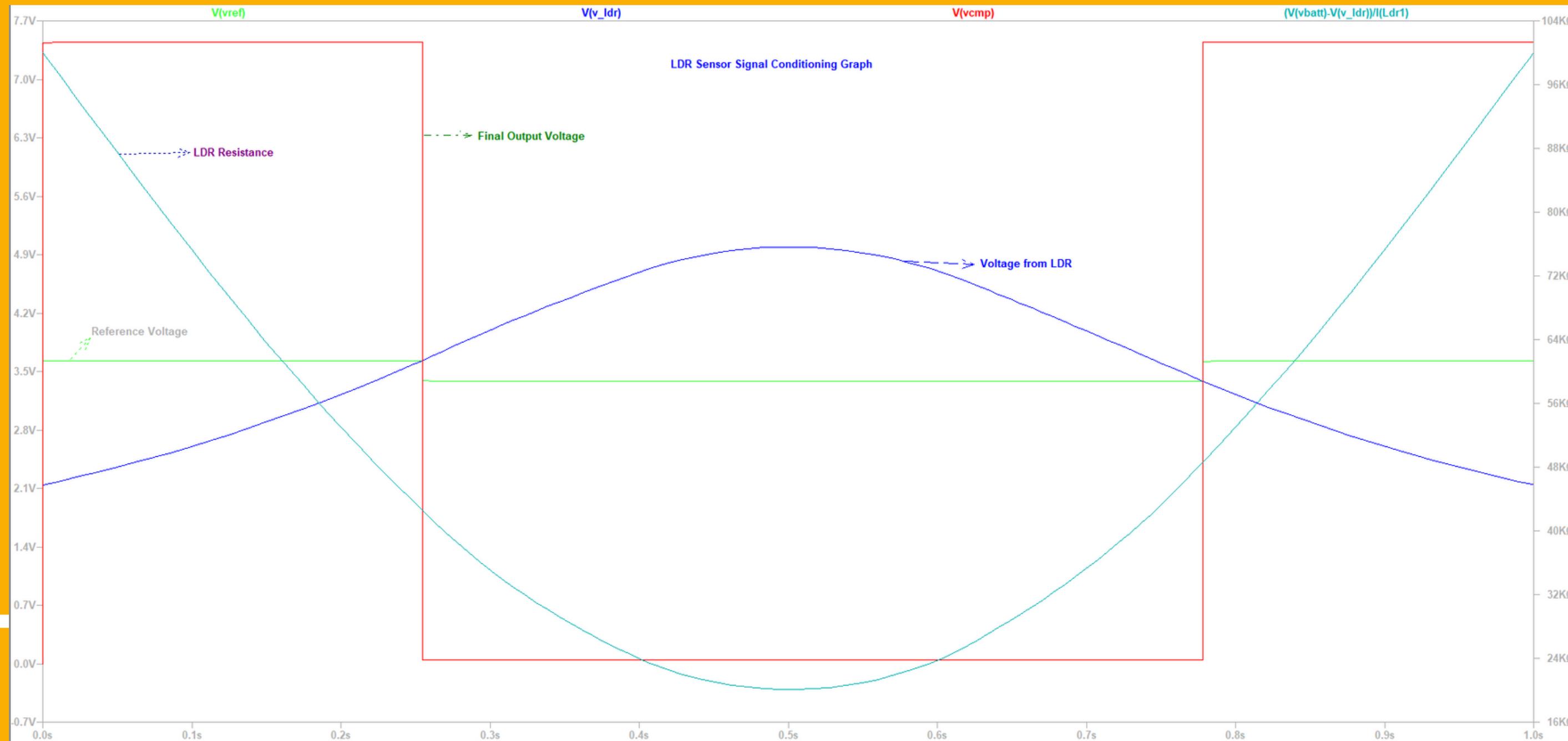
# **Signal conditioning circuit diagrams**

# LDR

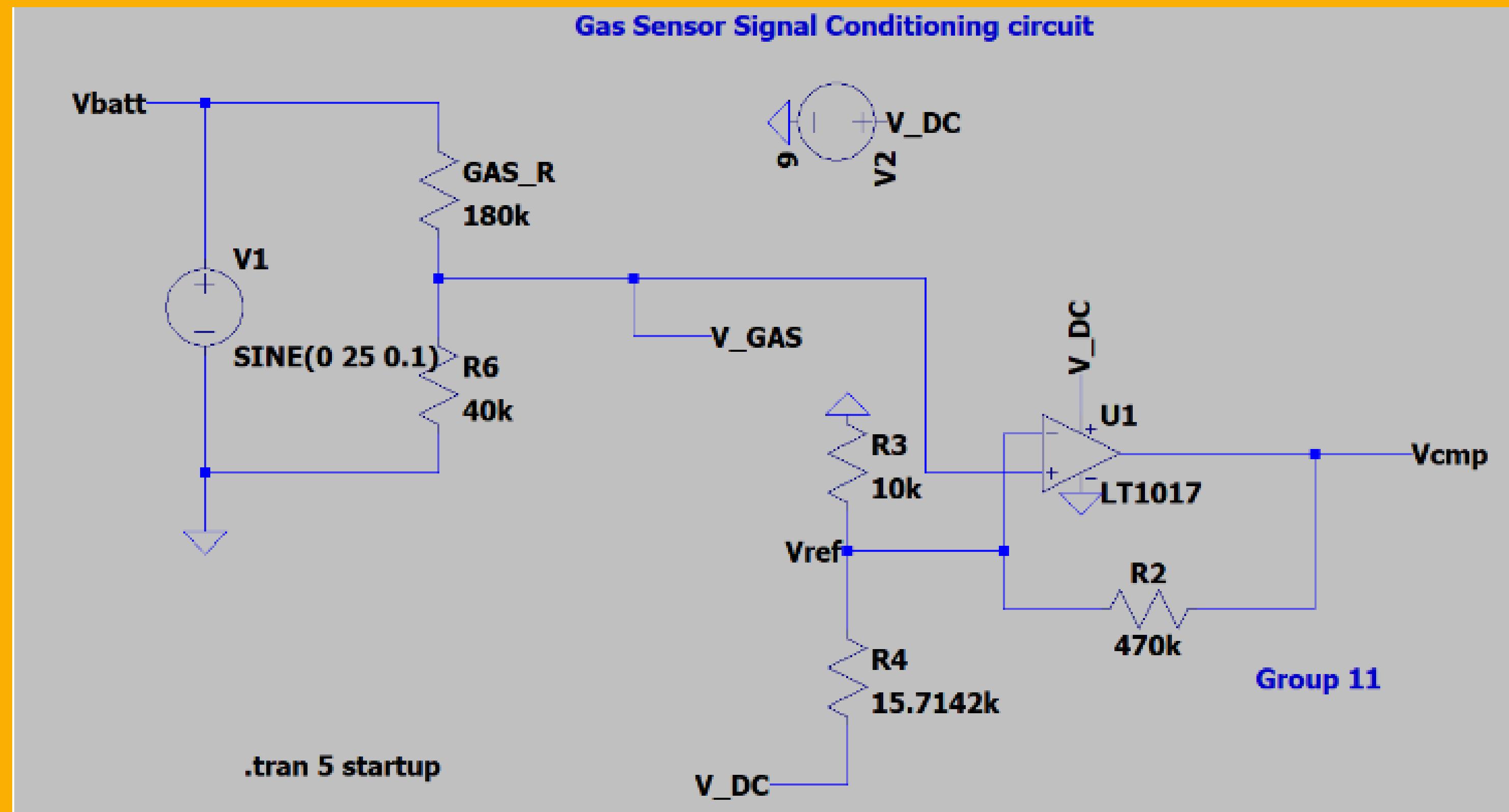
LDR Signal Conditioning circuit



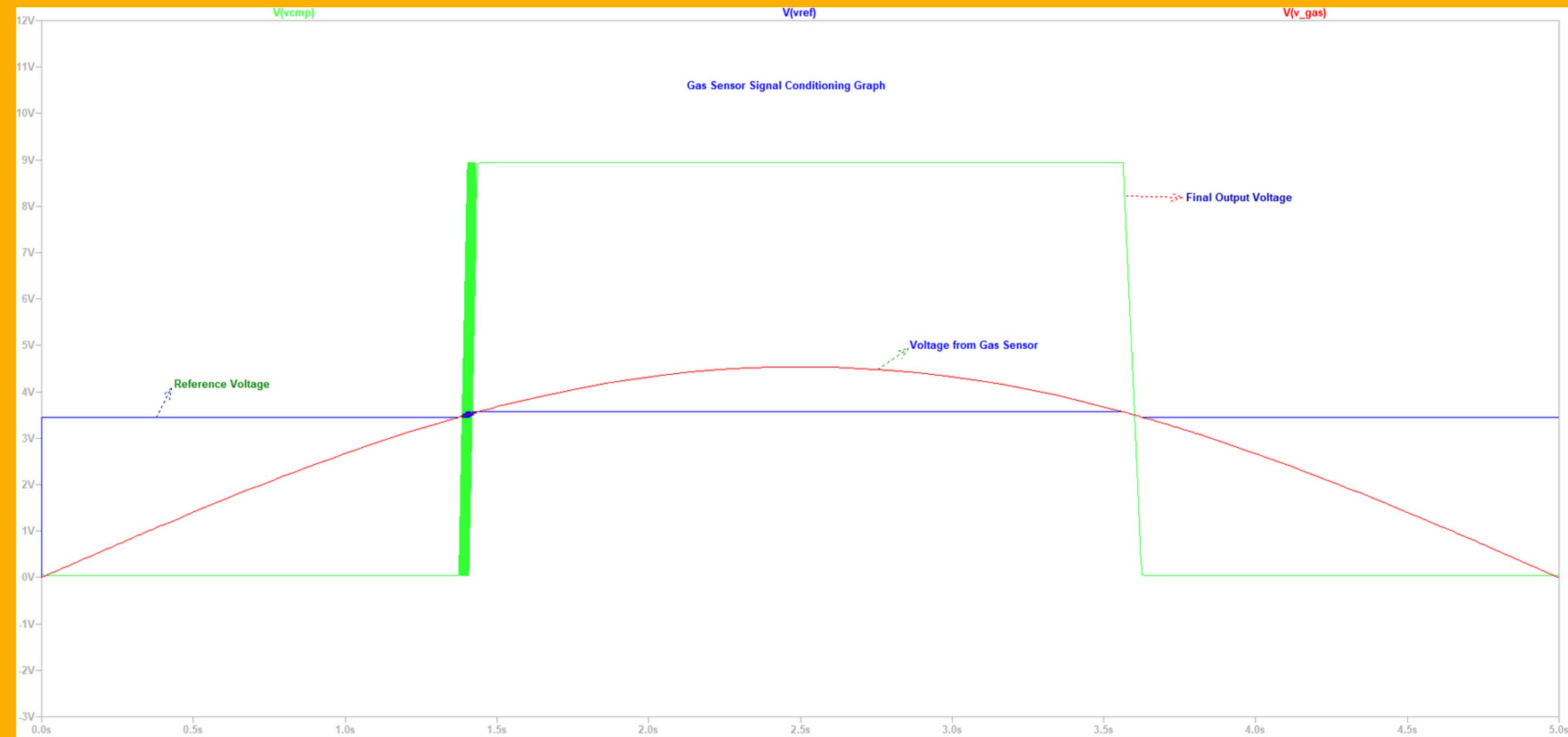
# OUTPUT



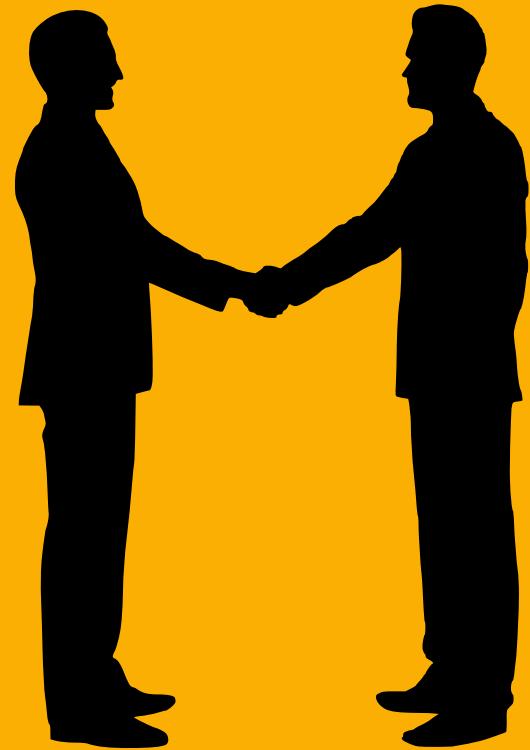
# Gas sensor



# OUTPUT



# Conclusion

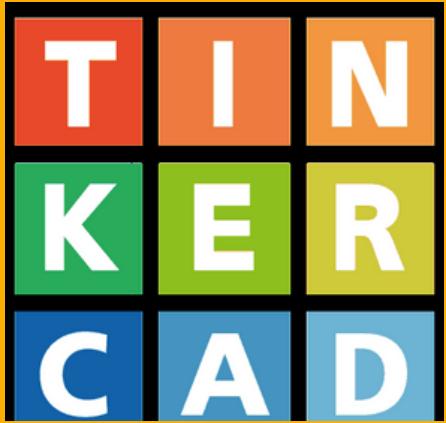


**The home automation system implementation was successful**  
**The ultrasonic sensor along with the keypad is useful in keeping the house secure from unwanted Visitors**  
**The light detection sensor along with the PIR sensor (Passive Infrared Sensor) can help in reducing the electricity bill by switching on the electrical appliances only when it is necessary**  
**The Gas sensor alerts the person in case of a gas leak and could even save the person's life**

# REFERENCES

Link to the sites we have used for our project:

- <https://www.semiconductorforu.com/applications-ldr-light-dependent-resistors/>
- <https://www.youtube.com/watch?v=bmeww8SGySc>
- <https://robu.in/pir-sensor-working-principle/>
- <https://www.watelectronics.com/light-dependent-resistor-ldr-with-applications/>



# THANK YOU!

Don't have a good day, Have a  
great day!