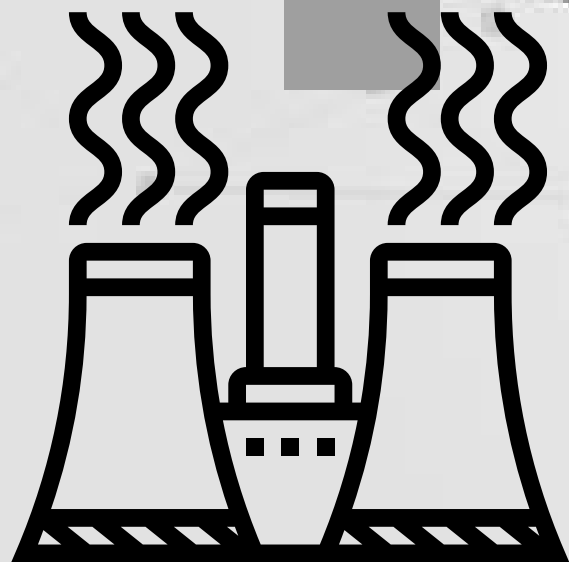


# SMART POWER CONSUMPTION

**IN LARGE SCALE INDUSTRIES USING IOT**



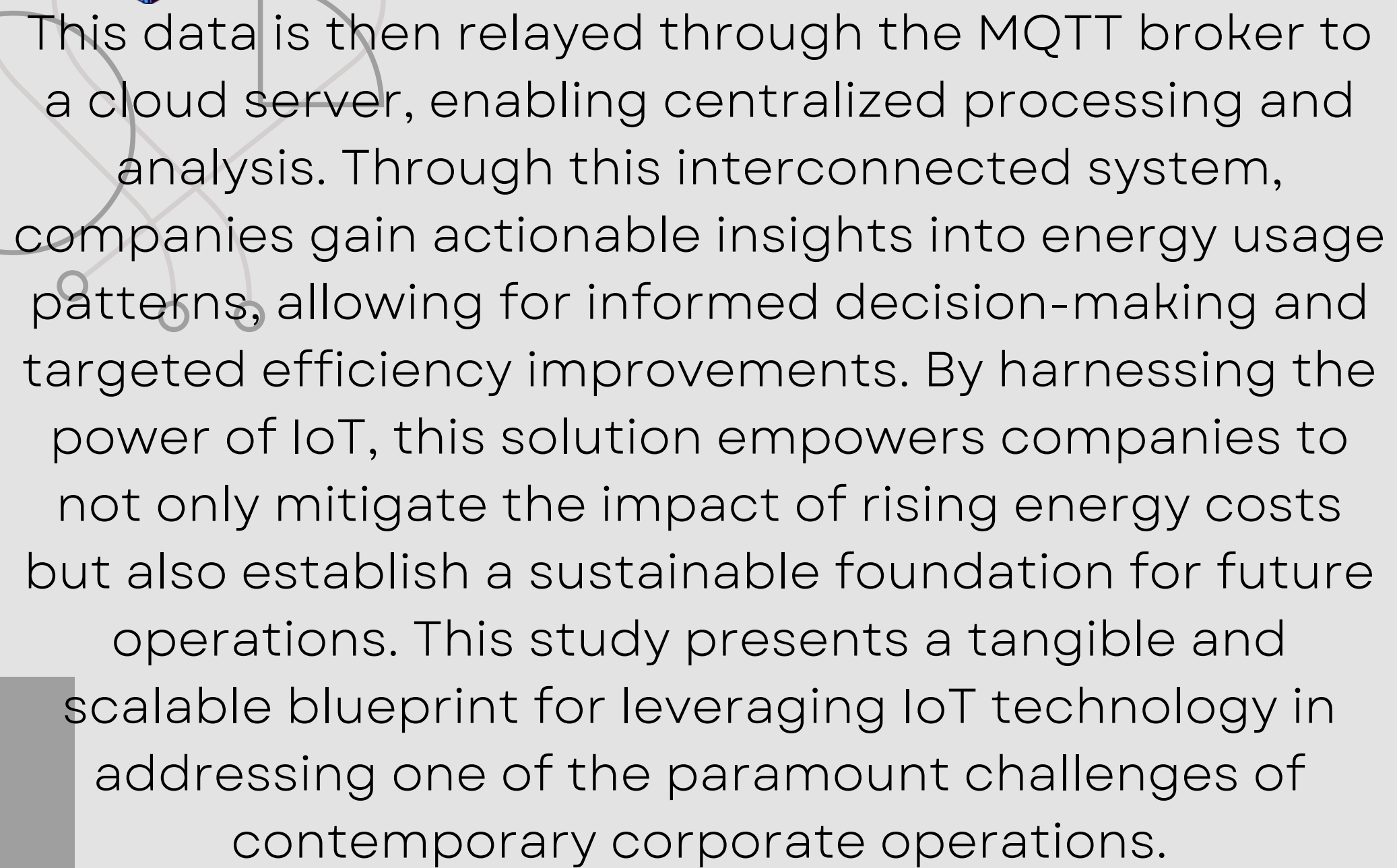
# ABSTRACT

## **Problem faced by large scale industries**

The contemporary challenge of escalating energy costs encountered by companies, leveraging the capabilities of Internet of Things (IoT) technology. By integrating Raspberry Pi, temperature sensors, an MQTT broker, and a cloud server, this innovative approach offers a robust framework to monitor and optimize energy consumption. The Raspberry Pi serves as a versatile edge device, facilitating real-time data acquisition from temperature sensors deployed strategically within the company premises.







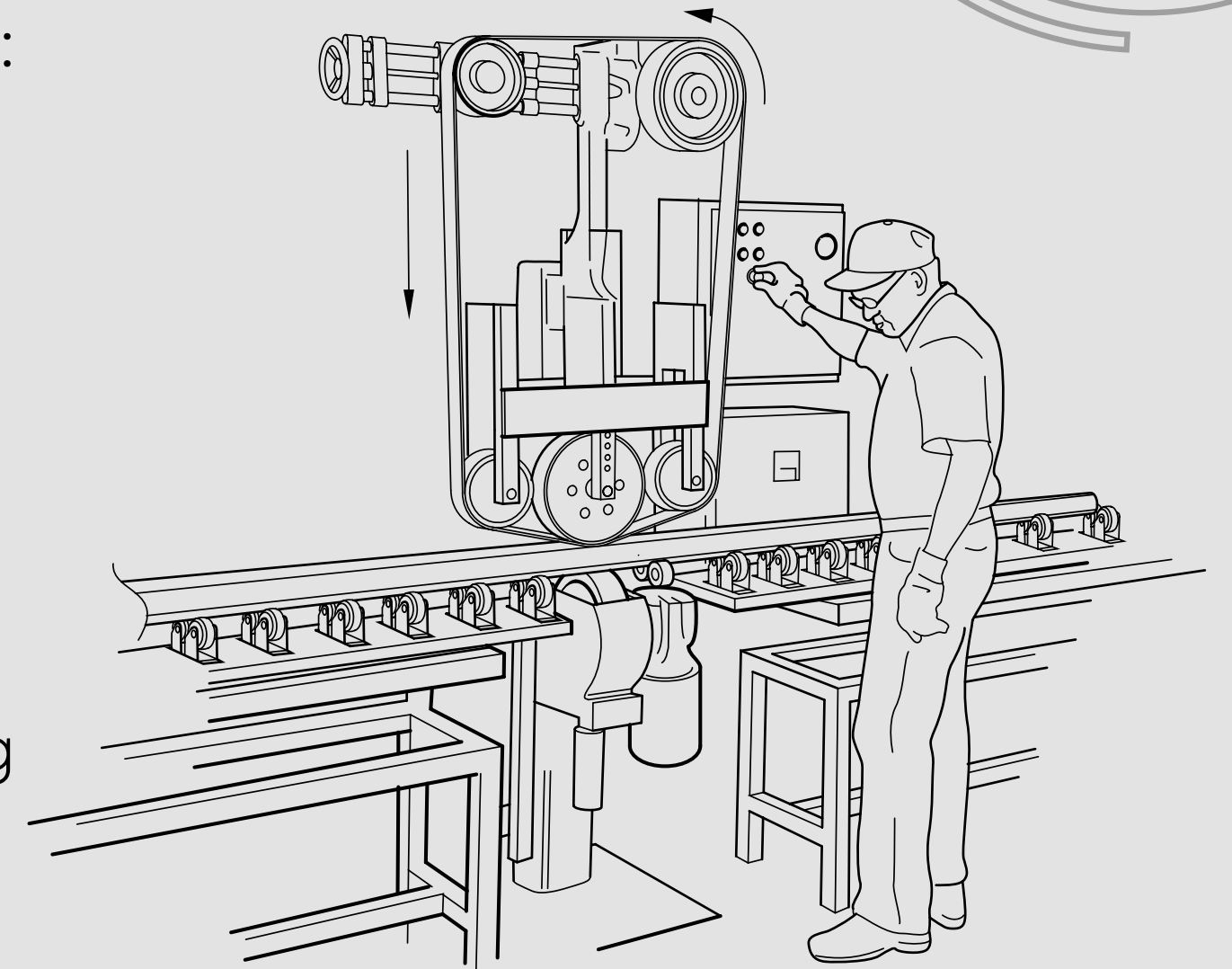
# Problem Statement

"Today, companies confront a pressing challenge in the form of escalating energy costs, which constitute a substantial portion of their operational expenses. Projections indicate that these costs are poised to continue their upward trajectory. Addressing this issue is paramount for businesses seeking to maintain financial stability and competitiveness in the face of an increasingly **energy-dependent** landscape."



# INTRODUCTION

In today's corporate landscape, a significant hurdle looms large: the relentless surge in energy costs. This formidable challenge has spurred an urgent need for innovative solutions. Enter the **Internet of Things (IoT) technology**, a potent ally in this battle. By seamlessly integrating **Raspberry Pi, temperature sensors, an MQTT broker, and a cloud server**, a pioneering framework emerges. The Raspberry Pi acts as a nimble edge device, orchestrating real-time data acquisition from strategically stationed temperature sensors. Through centralized processing and insightful analysis, companies glean invaluable insights to drive informed decisions and targeted efficiency enhancements. Through this IoT-driven solution, businesses are poised not only to cushion the impact of escalating energy costs but also to fortify their foundations for a sustainable future.







# SOLUTION THROUGH IOT

## EMERGING SMART DEVICES

IoT can be used to help companies reduce their energy consumption and costs. By deploying IoT devices throughout their facilities, companies can monitor their energy usage in real time. This data can be used to identify areas where energy is being wasted and to make changes to improve efficiency.

An IoT-enabled sensor could be used to monitor the temperature of a room. If the temperature is higher than necessary, the sensor could send an alert to the company, allowing them to turn down the thermostat and save energy.



## SAMPLE CODE:-

The following code shows a simple example of how to use IoT to monitor the temperature of a room:

```
import paho.mqtt.client as mqtt

# Define the MQTT broker address and topic
broker_address = "localhost"
topic = "building/room/temperature"

# Create an MQTT client
client = mqtt.Client()

# Connect to the MQTT broker
client.connect(broker_address)

# Subscribe to the topic
client.subscribe(topic)

# Start a loop to receive and process data from the topic
while True:

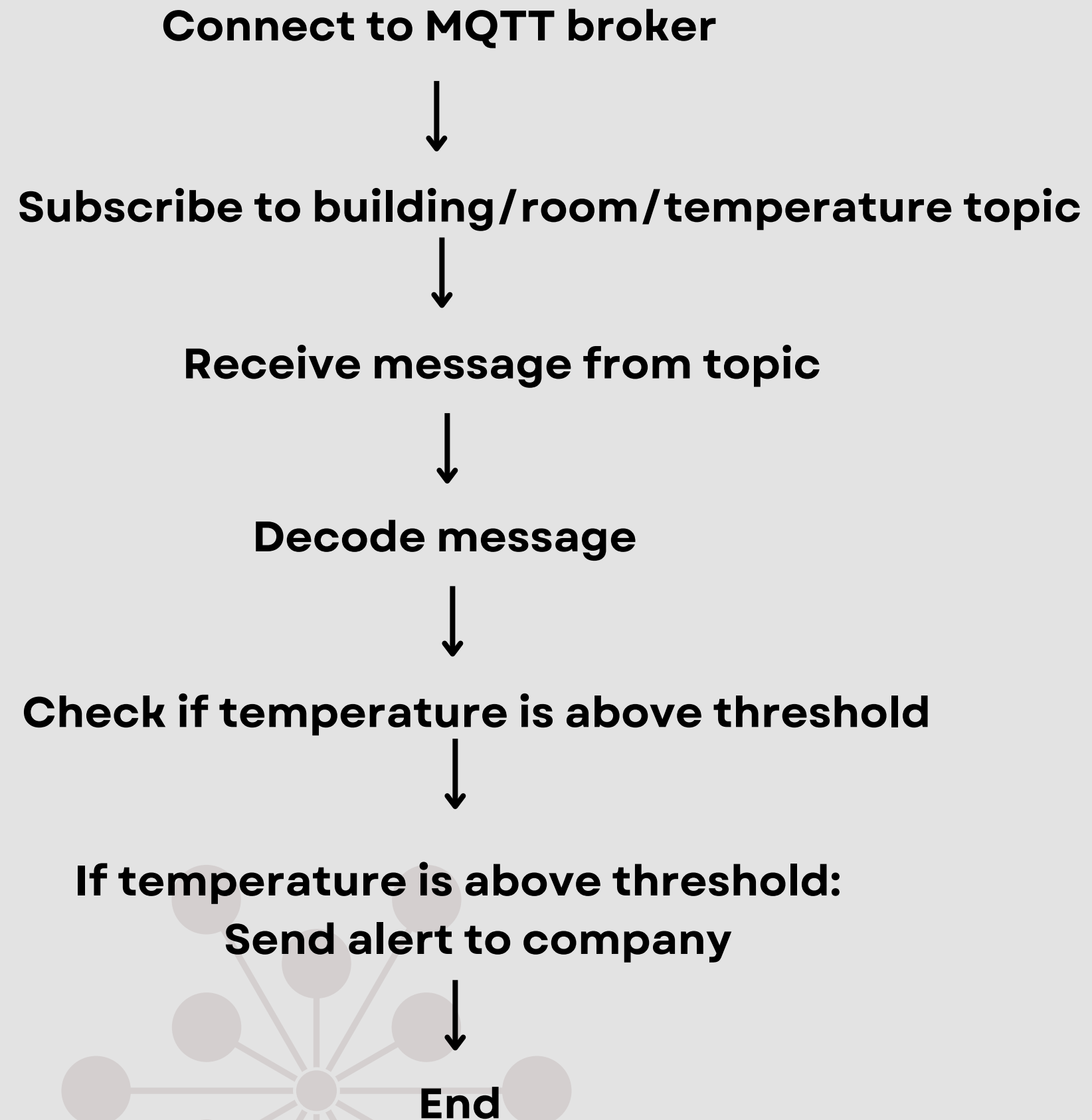
    # Receive a message from the topic
    message = client.receive()

    # Decode the message
    temperature = float(message.payload.decode())

    # Check if the temperature is above the threshold
    if temperature > 25:
        # Send an alert to the company
        print("Alert: Temperature in room is too high!")
```



## FLOW CHART:-

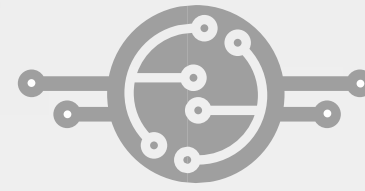




# Project conclusion

The implementation of IoT technology, incorporating Raspberry Pi, temperature sensors, an MQTT broker, and a cloud server, presents a powerful antidote to the burgeoning challenge of escalating energy costs. This project's success lies in its ability to provide companies with a dynamic framework for real-time energy management. By enabling precise data acquisition and centralized analysis, businesses can make informed decisions to optimize energy consumption. The scalability and adaptability of this solution position it as a valuable asset for companies of varying scales and industries. As energy costs continue to rise, this project not only offers a practical solution but also exemplifies the potential of IoT in addressing pressing challenges in modern corporate operations. It paves the way for a more sustainable and financially robust future for businesses in an increasingly energy-dependent world.





**THANK YOU**