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IoT Based Smart Surveillance and Automation

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IoT Based Smart Surveillance and Automation

Introduction

- The growing number of thefts and robberies has made people rely on cost effective systems for their safety.
- Simply, the establishment of traditional surveillance cameras don't help in forestalling burglaries.
- Existing systems that are commonly in use to monitor areas, leaving their footage to be reviewed at a later stage.
- Security surveillance camera recording methods consume a huge storage, and they need a dramatic time to search in the recorded files.
- Since the corona outbreak, it has become very difficult to identify those who are affected by the virus or not and using a temperature handgun to check body temperature is a lot of manual work.

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Objective

- To sense suspicious activity of intruder and alerts in absence of staff.
- Assists in avoiding public health problems.
- To reduce huge amount of storage and time to search in the recorded files.
- To provide a surveillance system at an affordable price.

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Project Model

- We will leverage the power of IoT, we will build a Temperature Monitoring device with Email alerts using Raspberry Pi, MLX90614, and PiCamera.

- An innovative surveillance system which is powered by the Raspberry Pi that provide results with minimal latencies.
- There are 6 steps involved in the working of our model:

1: Body Temperature is Recorded

2: Input Camera Feed
3: Background Subtraction
4: Detection
5: Start Video Recording and Upload to drive
6: Alert using SMTP protocol

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- Flowchart

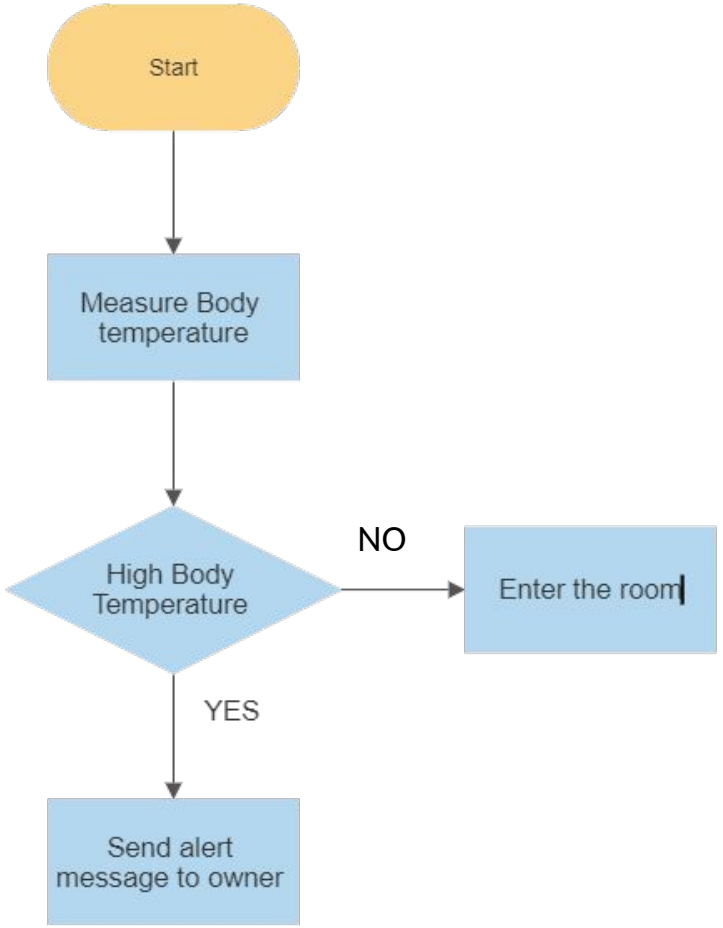

Fig1: Body temperature

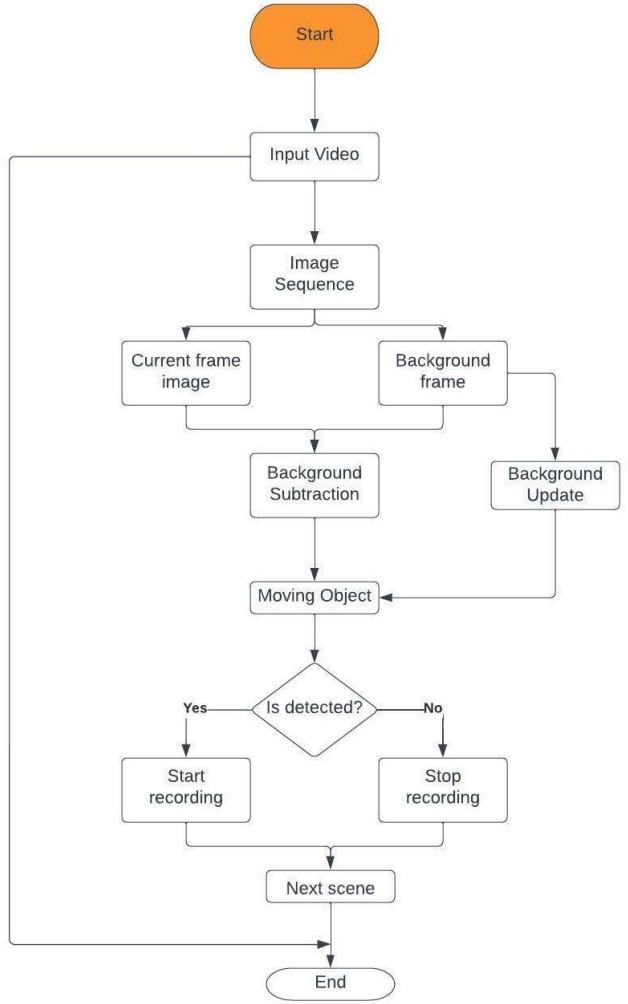

Fig2: Motion detection flow chart

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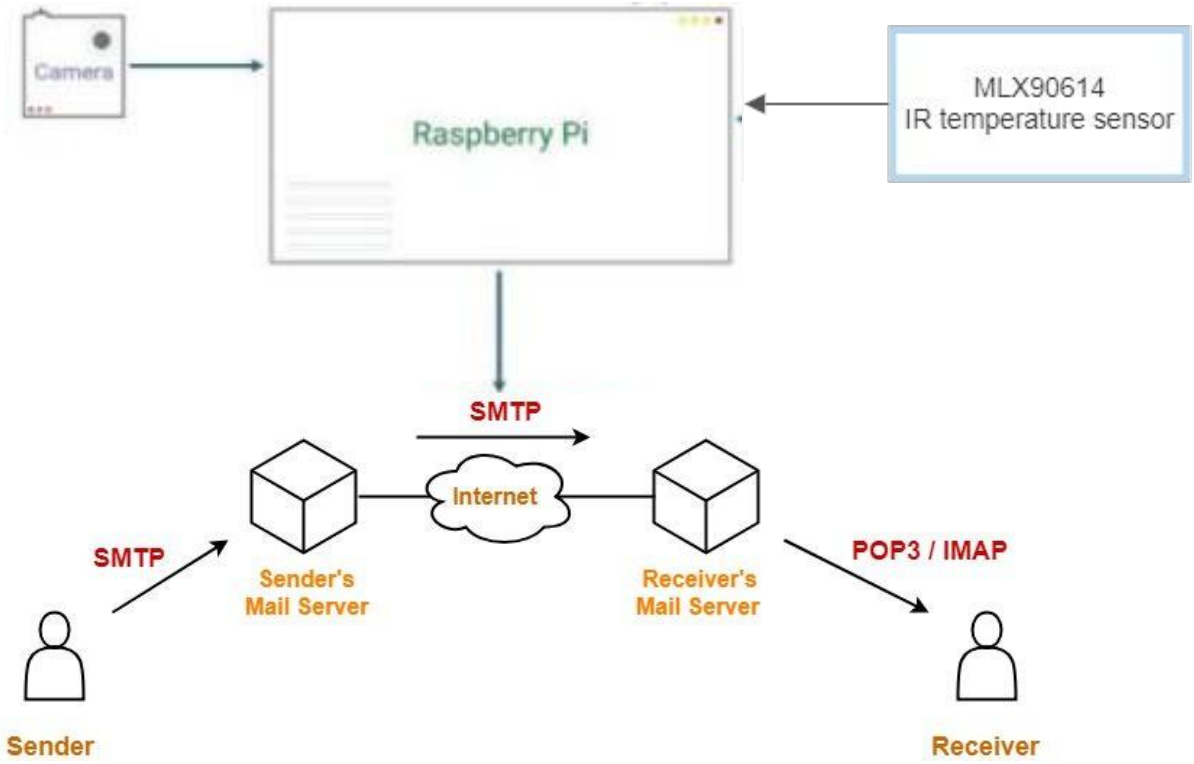
- Block Diagram



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Software and Hardware requirements

Language/Framework:
Python

External Tools:
Raspberry Pi Camera Module
Raspberry Pi 3B
Contactless IR Temperature Sensor MLX 90614
Connecting wires
Breadboard
Power supply

Storage:
Micro SDCard class 10 32GB
Google Drive

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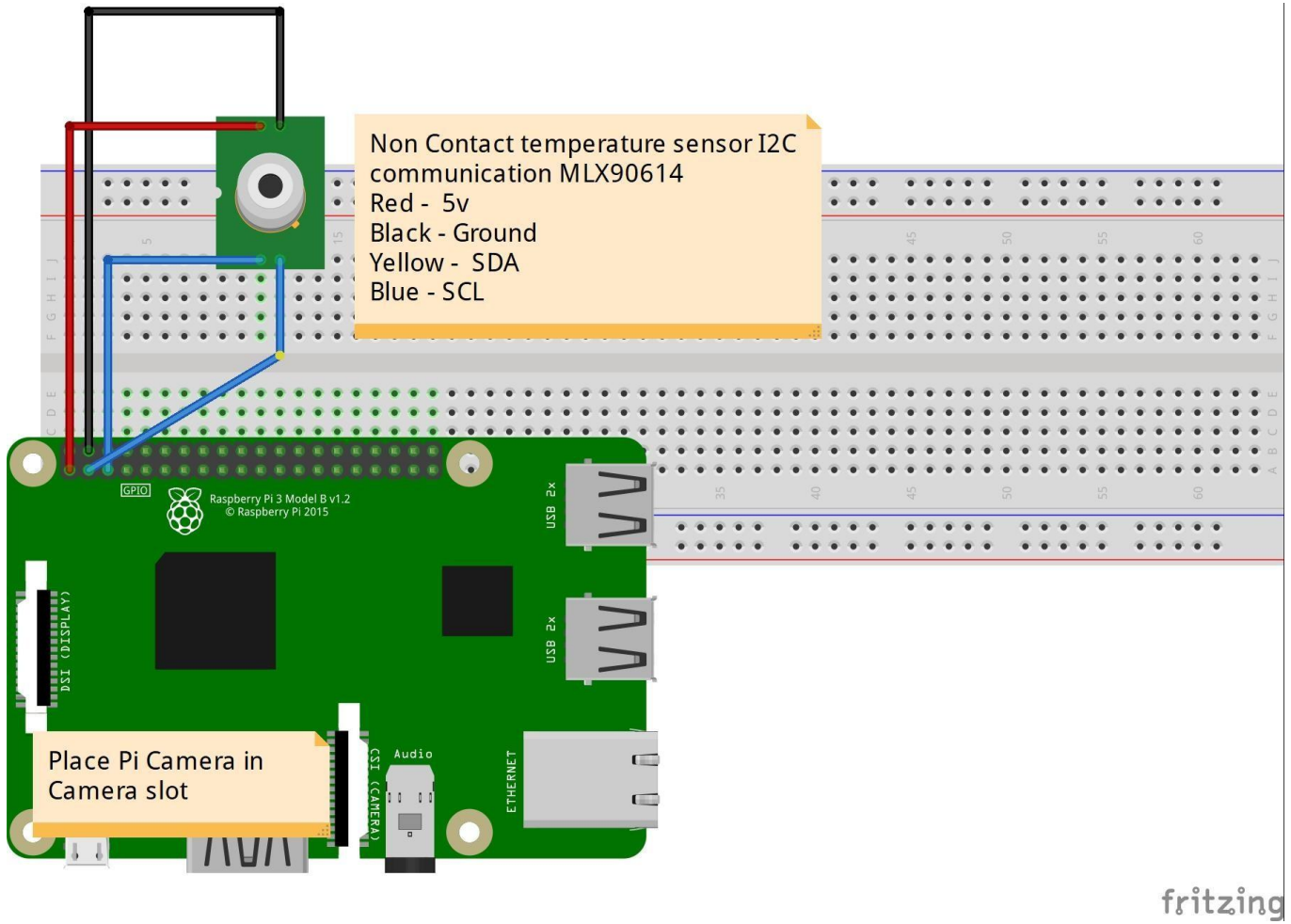
Circuit Diagram



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Applications

- Room surveillance.
- Health Safety.
- Human Body Temperature Measurement.
- Staff Safety.
- Loss Prevention.

Project Budget

Sr. No.	Hardware/Software Components	Component wise Price
1	Raspberry Pi 3	3100
2	Pi Camera	400
3	MLX90614 - IR temperature sensor.	850
4	Power Supply (5V,2A)	350
5	MicroSDcard class 10 32GB with reader	750
	TOTAL	5450

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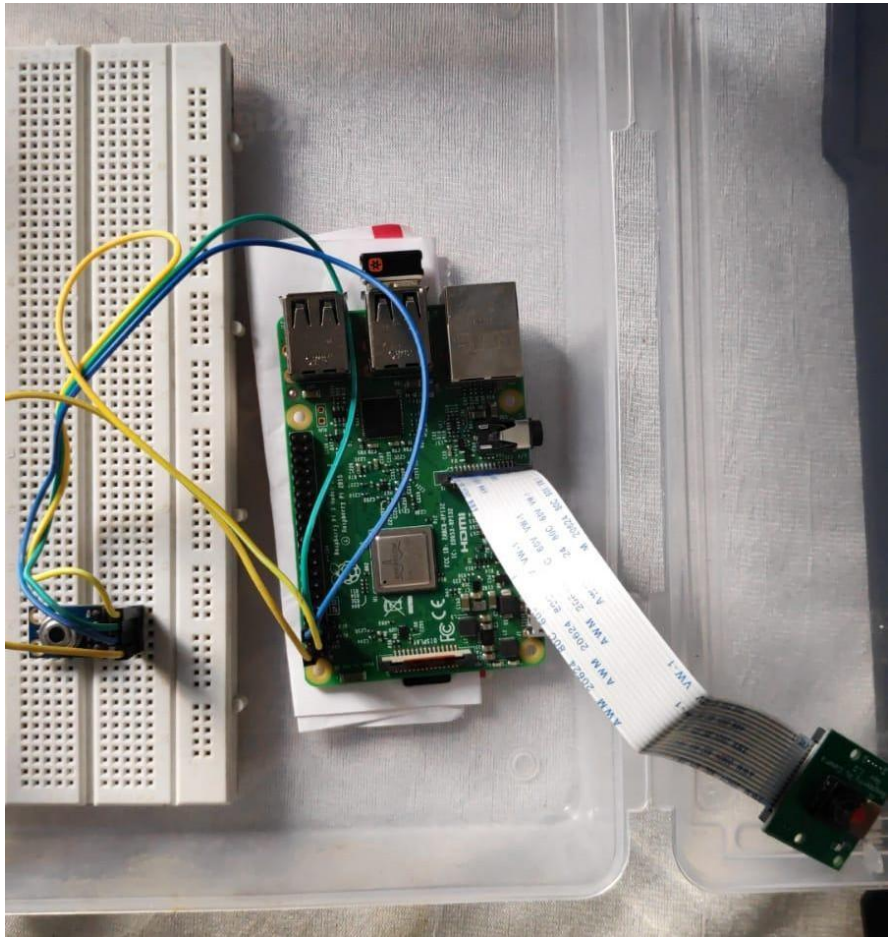
Demonstration



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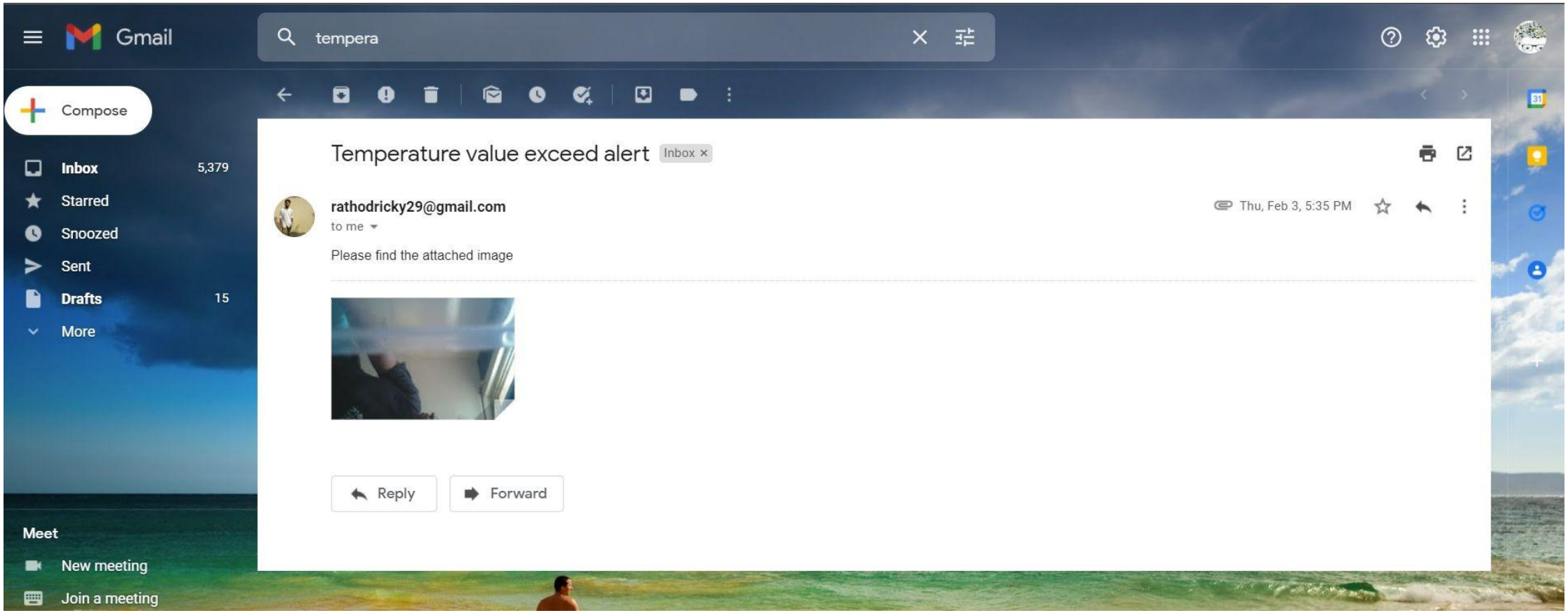
Demonstration



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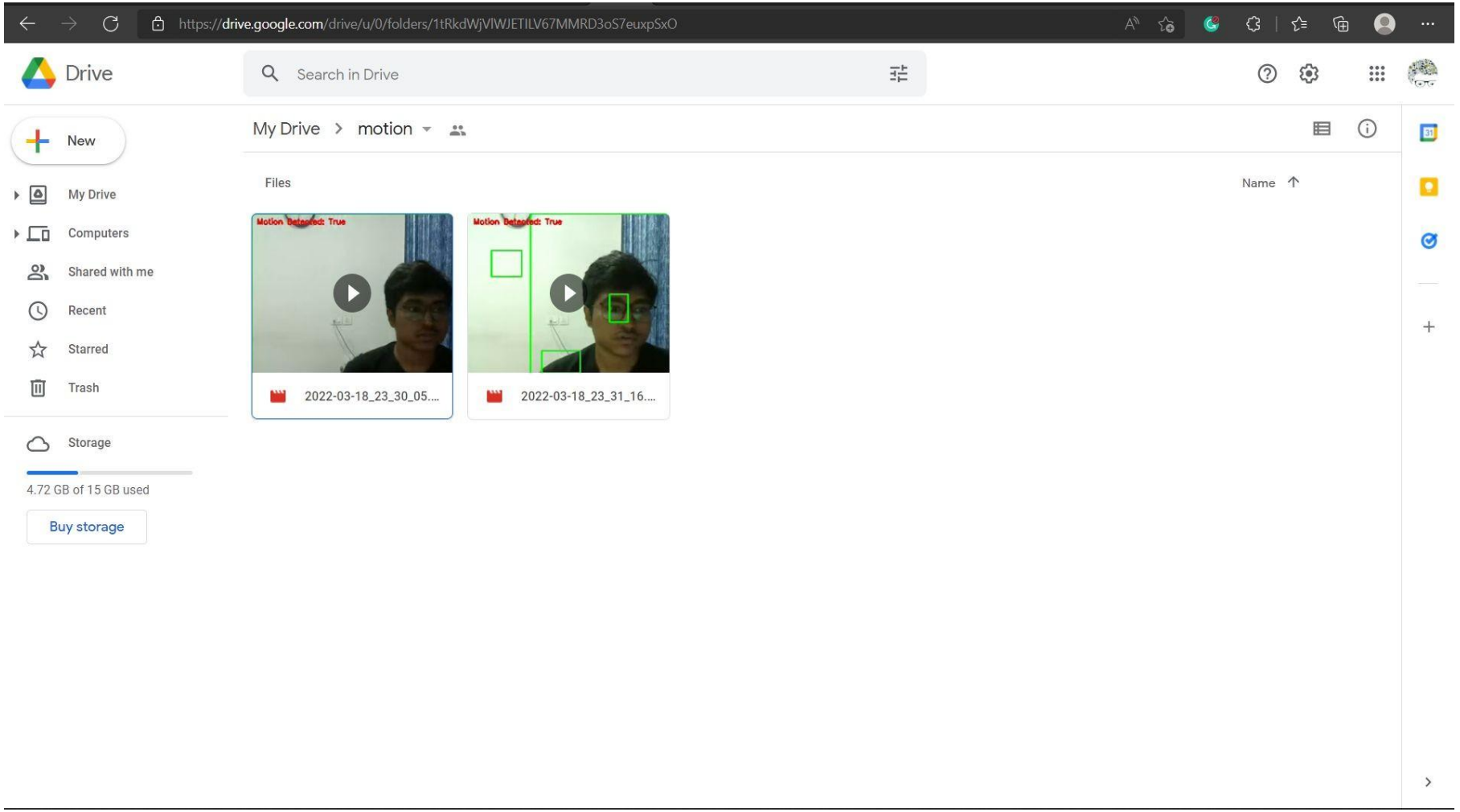
Demonstration



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Demo Video

References

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4 “On using AI-based human identification in improving surveillance system efficiency” Sanyukta Santosh Pawaskar, Ashwini Mandar Chavan

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Thank You