

GUIDELINES

- You can increase/decrease points but the total slides should **not be more than 10.**
- Make your points expressible, no need to add heavy content.
- In case of discrepancies, the decision made by the organising committee will be final and binding.

Instructions to make a copy for online submission:

- Go to File > Make a Copy > Entire Presentation
- Save a copy of this file to your Drive (*Do not request access to edit this file*)
- Populate all the slides with relevant information
- Submit the file with your idea on the google form

Team Member Details

Team Name	Team TraffikTrak		
Team Members >>	1 (Leader)	2	3
Name	Kalparatna Mahajan	Virendra Bagul	Mayur Badgujar
Institute Name	Shri Vile Parle Kelvani Mandals Institute of Technology Dhule	Shri Vile Parle Kelvani Mandals Institute of Technology Dhule	Shri Vile Parle Kelvani Mandals Institute of Technology Dhule
Email	kalparatna223@gmail.com	virendrabagul7@gmail.com	mayurbadgujar873@gmail.com

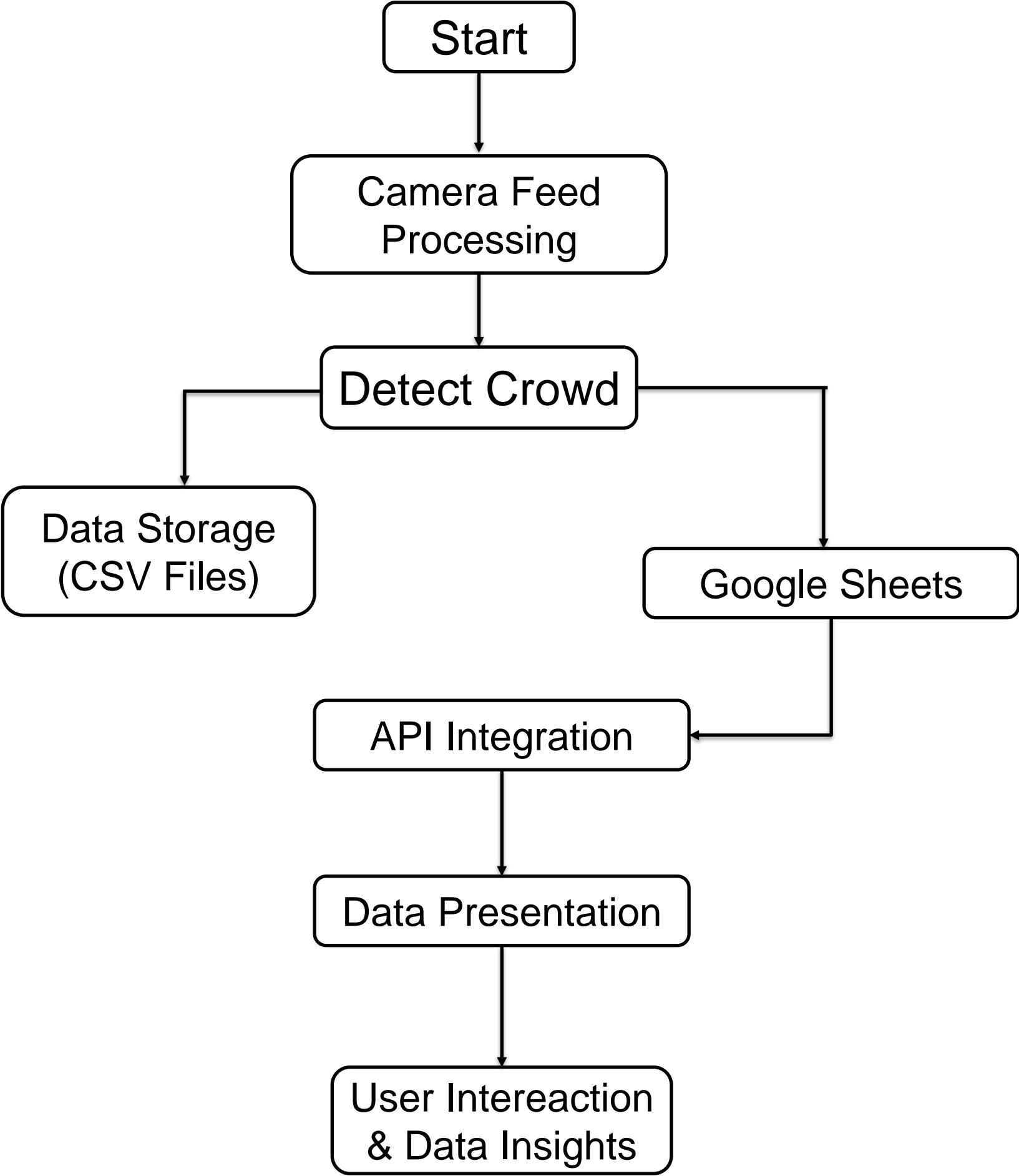
Problem Statement

- Blind businesses and frustrated customers: that's the reality of poor customer flow management. Inefficient staffing, lost sales, and long lines are just the first hurdle. In today's world, concerns about crowded spaces and potential virus transmission add another layer of complexity. TraffikTrak cuts through the chaos with real-time customer flow insights, empowering businesses to optimize operations and customers to avoid crowds. Imagine businesses making data-driven decisions, and customers confidently choosing less crowded times. TraffikTrak's vision? Smarter businesses, happier customers, and a safer environment for all.

Idea/Approach

- TraffikTrak is a real-time people-tracking solution that utilizes computer vision and the OpenCV library. It counts individuals entering and leaving establishments through security cameras, with data storage facilitated by the Google Drive API. This allows for visualization on a user-friendly dashboard. The system aids in crowd management, empowering businesses to optimize operations and helping customers avoid crowded times. It provides valuable insights for decision-making, especially in the context of the COVID-19 pandemic we faced from 2019 to 2021. The solution is easily implementable, requiring only a security camera and a computer.

Flow Diagram:



Tools/Items used

☐ Web Application (Dash):

1. Language: *Python*
2. Frameworks: *Dash, Plotly (Express and Graph Objects), Pandas,, Flask*
3. Database: *Google Sheets API (gsread)*
4. Frontend: *HTML, CSS*

☐ Backend Technology / Tools:

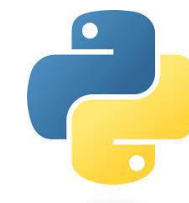
- 1.- Language: *Python*
- 2.- Libraries: *OpenCV (cv2), CSV, gsread*
- 3.- APIs: *Google Sheets API*

☐ External Services:

- 1.- *Google Drive API*
- 2.- *Google Sheets*



Flask



Google Sheets



Use Cases

1. Real-time Management: Enables businesses to manage customer flow in real-time, optimizing operations.
2. Data-Driven Decisions: Provides valuable data insights for informed decision-making on staffing, hours, and more
3. Customer Convenience: Empowers customers to choose optimal times, reducing wait times and enhancing experience.
4. Crowd Avoidance and Safety: Helps customers avoid crowded spaces, promoting safety measures during health crises.
5. Efficient Resource Allocation: Optimizes resource planning for staff and inventory based on customer traffic.
6. Predictive Modeling: Suggests days with the least traffic, aiding users in choosing optimal visit times.
7. Universal Accessibility: User-friendly for businesses and consumers, accessible with basic requirements.
8. Historical Data for Planning: Stores historical data for trend analysis and future planning.
9. Versatile Implementation: Applicable to various businesses beyond pandemics.
10. Integration with Google Drive API: Utilizes Google Drive API for data storage, enhancing accessibility and security.

Potential Problems which could be Faced

Q: What potential problems could be faced in implementing TraffikTrak?

A: One potential problem could be the privacy concerns associated with people-tracking through security cameras.

Q: How would you solve the privacy concerns?

A: To address privacy concerns, TraffikTrak would implement strict data anonymization measures. The system would only focus on counting the number of people entering and leaving, without capturing or storing any personally identifiable information. Additionally, clear privacy policies would be communicated to users and establishments utilizing the system.

Q: Are there potential challenges related to system integration with existing infrastructure?

A: Yes, integrating TraffikTrak with existing infrastructure might pose challenges, such as compatibility issues with different camera systems and data storage solutions.

Potential Problems which could be Faced (continue...)

Q: What would be the preferred solution for system integration challenges?

A: The preferred solution would involve developing flexible APIs and protocols to ensure compatibility with various camera systems and databases. Additionally, providing comprehensive documentation and support for integration would be crucial to facilitate a smooth implementation process.

Q: Are there considerations for potential inaccuracies in people counting?

A: Yes, factors like varying lighting conditions and occlusions might lead to inaccuracies in people counting.

Q: How would you address inaccuracies in people counting?

A: TraffikTrak would incorporate advanced algorithms and machine learning models to enhance accuracy, accounting for different environmental conditions. Regular system calibration and updates would also be implemented to improve counting precision over time.