Major Project

Electronics Department

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Project Topic

Conclusion

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Intelligent Security and Information management system using Video analysis

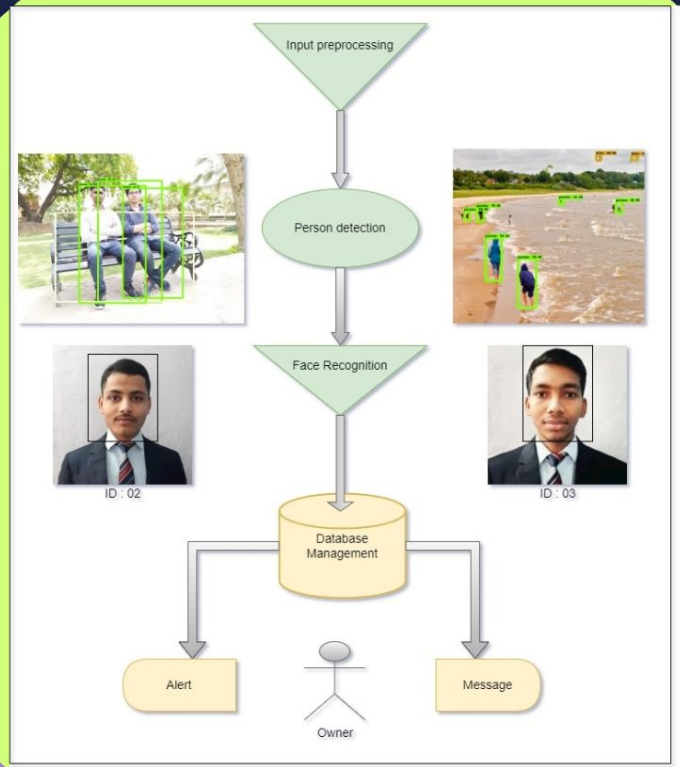
Problem Statement

- We encountered a need for a intelligent system that cab be used for security and information management system.
- To tackle this need we used F-CNN to design this intelligent system which identify selective object from the image and manages its information and alerts to admin according to the previously set condition.

Block Diagram

Project Timeline

Application


Input preprocessing
Person detection
Face Recognition
ID : 02
ID : 03
Database Management
Alert
Owner
Message

Project Timeline

- Researched & Strategy
- Selection of tools and frameworks
- Installation and environment setup
- Data collection
- Training and Testing model
- Accuracy and parameter tuning
- Log/ Github

Researched & Strategy

- Objective: Study about the selected project and focus on its every aspects and strategies towards fulfillment of the project.
- Result: Read various research paper and learned about limitation and remedies.

Selection of tools and frameworks

- Objective: Study about various Machine Learning tools and different machine learning models and Framework.
- Result: Finalized the tool that can give optimum result for our objective.

Installation and environment setup

- Objective: To install required software and setup an environment
- Result: Installed prerequisites which satisfies version constraint.

Data collection

- Objective: Collect required data for machine Learning operation.
- Result: Extracted frame from videos and labeled them.

Training and Testing model

- Objective: To build a model to have sufficient parameters and attributes.
- Result: Trained Faster R-CNN model using Tensorflow APIs

Accuracy & parameter Tuning

- Soon to be started
- Objective: Improve accuracy and complexity of the model.
- Result: Soon to be awaited.

Applications

- Remote Video Monitoring
- Traffic Monitoring
- Public Safety
- Employee Safety
- Loss Prevention
- Facility Protection
- Monitor Operations

Conclusion

Reference

- Analysis of video and activity prediction allow the system to give proper recommendation based on the proper management of the field.
- The real time surveillance along with provided activity data ensure proper working environment according to the application.

References

[1] R. Girshick, Fast R-CNN, arXiv:1504.08083v2, 27 Sep 2015.

[2] S. Ren, K. He, R. Girshick, and J. Sun, Faster R-CNN: Towards Real-Time Object Detection with Region Proposal Networks, arXiv:1506.01497v3, 6 Jan 2016.

[3] T. Karmarkar(2018, Aug 19), Region Proposal Network (RPN) — Backbone of Faster R-CNN, [Online]. Available: https://medium.com/egen/region-proposal-network-rpn-backbone-of-faster-r-cnn-4a744a38d7f9