Novel Video Analytics and Tapestry

V. Alekhya
Nadimpalli Vineetha
Tarun Rajnish
Mohammed Talha Zubair

Dr.Suryaprasad J
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Motivation of the Work

Then

- Humans did bulk of the work
- Accessed hours of video data
- Tedious and cumbersome
- Human error or oversight

Need to eliminate human intervention

Now

- VMD system monitors all cameras in the network
- Reacts only when there is suspicious activity

Problem Statement

- Video content analysis - analyze video to detect and determine temporal and spatial events
- Purpose of ensuring safety and security

Our Attempt:

- Detect unwanted access (intruders)
- Process the data obtained from CCTV footage via various video stitching techniques

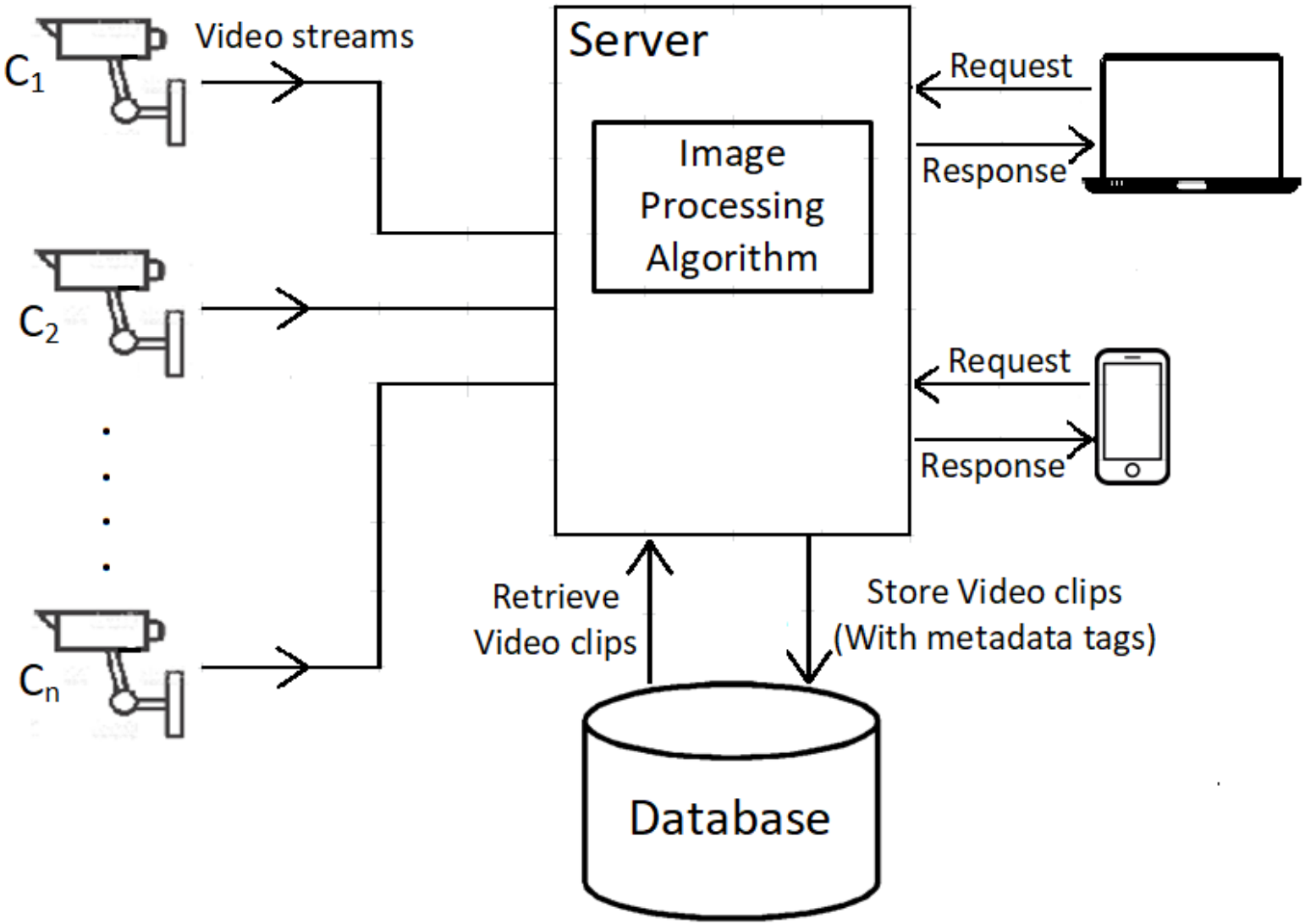
VAT
(Video Analytics and Tapestry)

We would focus on the feature of producing a

time line depicting the path travelled

by the intruder, computed from the feed of multiple cameras in the network

High level block diagram



Basic structure of the proposed model

Proposed methodology

1. Video clips from cameras on the network
2. Image/Video processing algorithms
    - Add metadata to each clip
        - Camera ID
        - Timestamp
        - .....
    - Store video clips
    - Check for intruder
        - (if detected)
        - -Retrieve video clips of neighbouring cameras
        - (repeat)
        - -link video clips(tapestry)
3. Analytics and statistics

Literature Survey

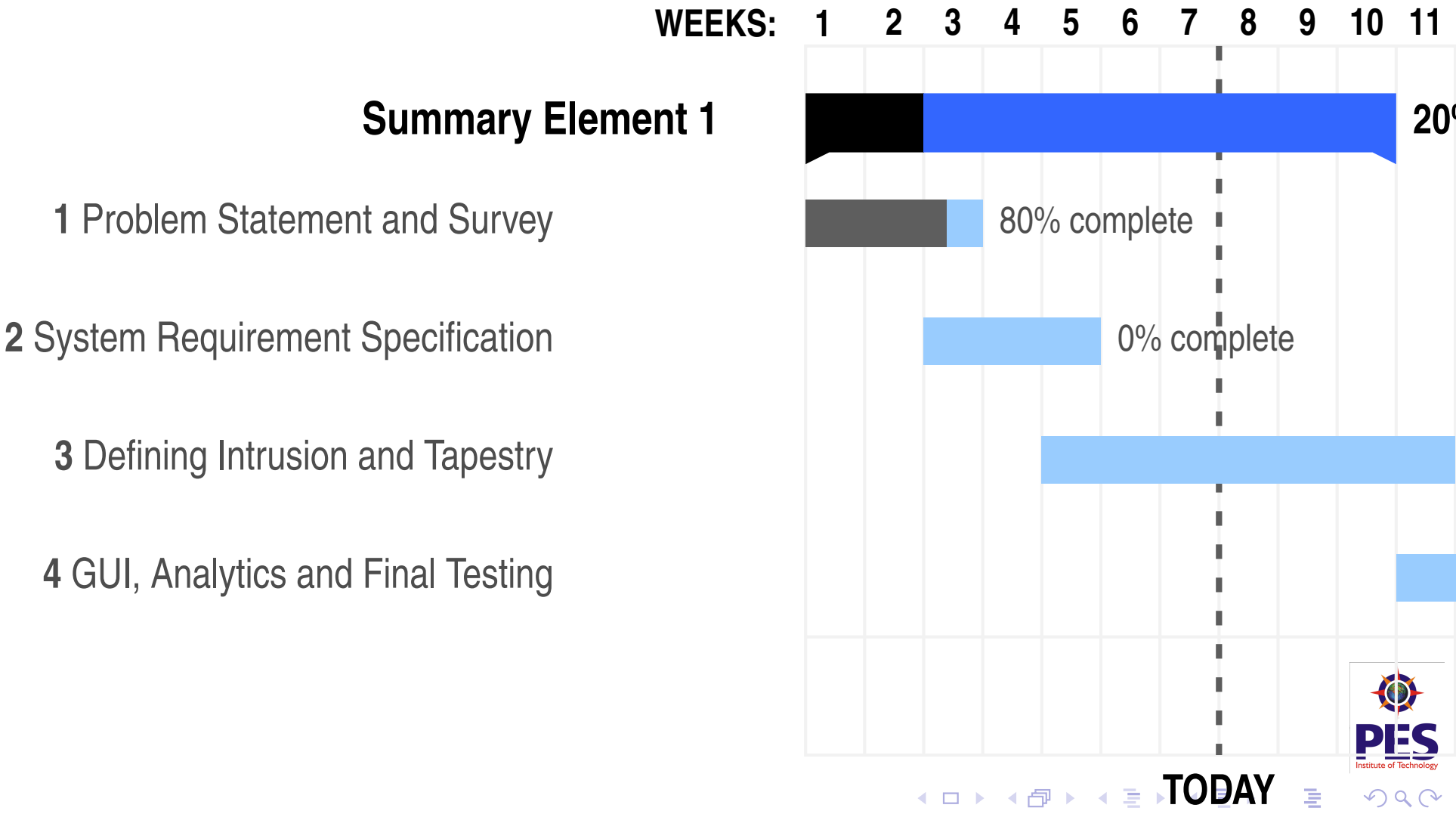
- Andrew A. Adams and James M. Ferryman discuss the three stages of a surveillance system. The first stage of people and/or object monitoring is detection and classification which consists of localizing new objects entering the surveillance area.

- White Paper Agent Video Intelligence introduces an architectural approach to Video Analytics. With Agent VIs architecture, the Video Analytics task is distributed between the edge device (which may be an IP camera or encoder) and a server.

Literature Survey

- Frost & Sullivan mention in their white paper that the core of IBM's Intelligent Video Analytics solution deals with the application of analytic and information management tools to the available video data. It can process the video data in real time to extract events (activities in the cameras field of view) and classify the events or objects in them in multiple ways, including generating metadata on them.

Time line of completion of project from Nov 2017-10th April 2018(Gantt Charts).



Proposed Outcome

1. Tapestry of video clips

2. Detection of intruder(Non-staff, non-student,...)

3. Analytics on surveillance data

4. Open source datasets

References

James M. Ferryman, Andrew A. Adams

The future of video analytics for surveillance and its ethical implications

Security Journal, 2012

AGENT VI

White paper agent video intelligence tech. rep.,

JULY 2016

B. Cotton

Enhancing a citys ability to plan, protect and manage with intelligent video analytics, Tech. Rep.

GPW12348-USEN-00

A Frost & Sullivan White paper

The End