

# Distributed Real-Time Embedded Video Processing

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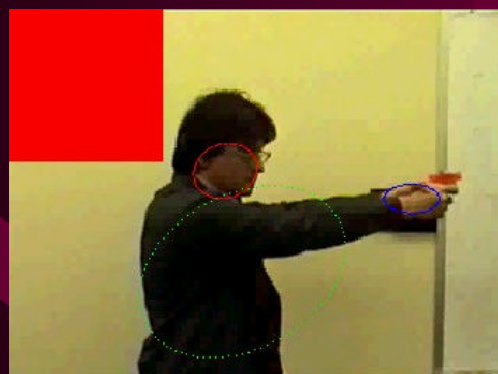
*(2) Verificon Corp.*

# Smart Camera Systems

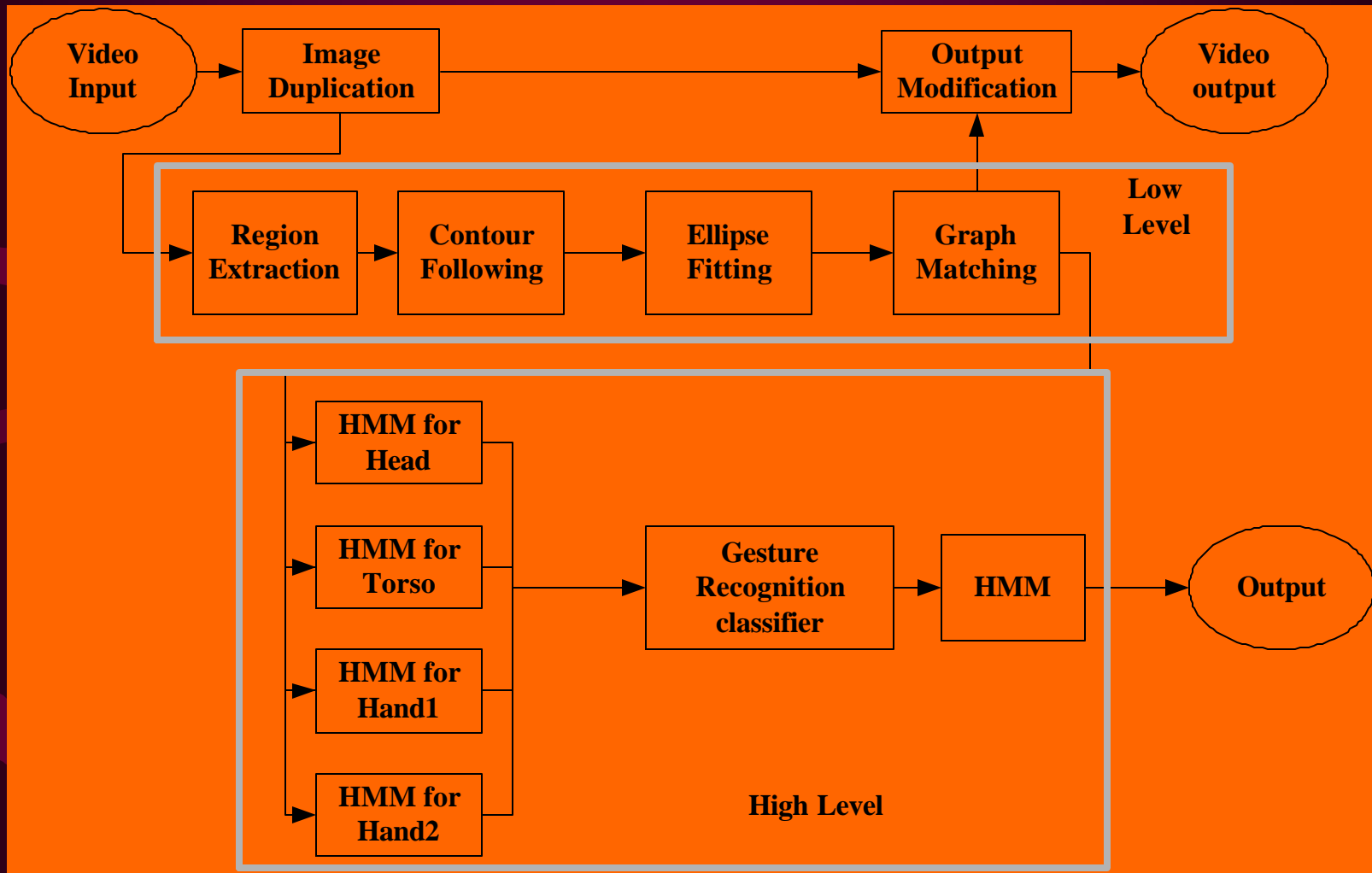
- A smart camera is a video surveillance system that is able to identify body parts and objects and then recognize the activity of people or objects in the scene.



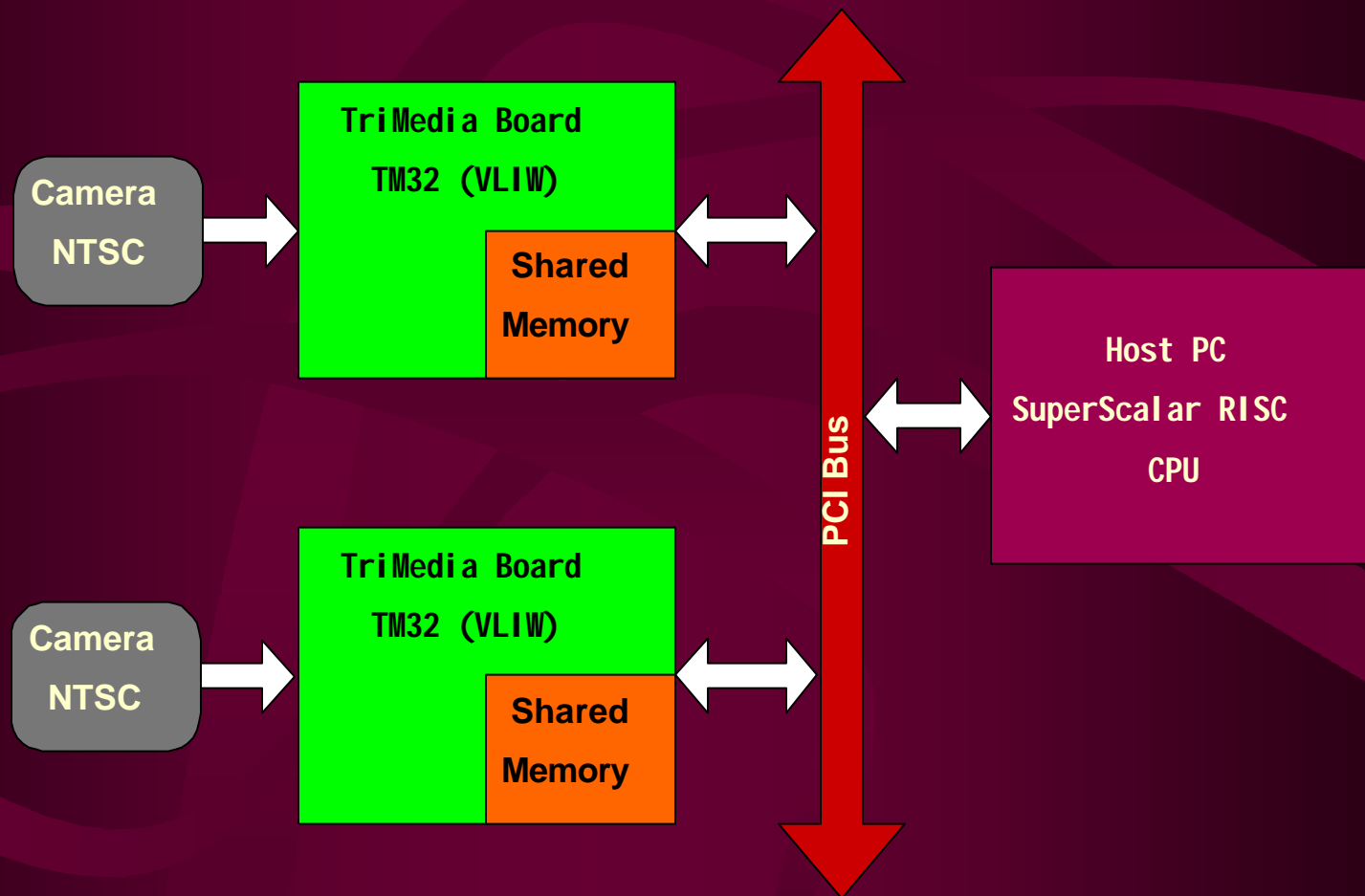
# Sample Scenarios



# Algorithms

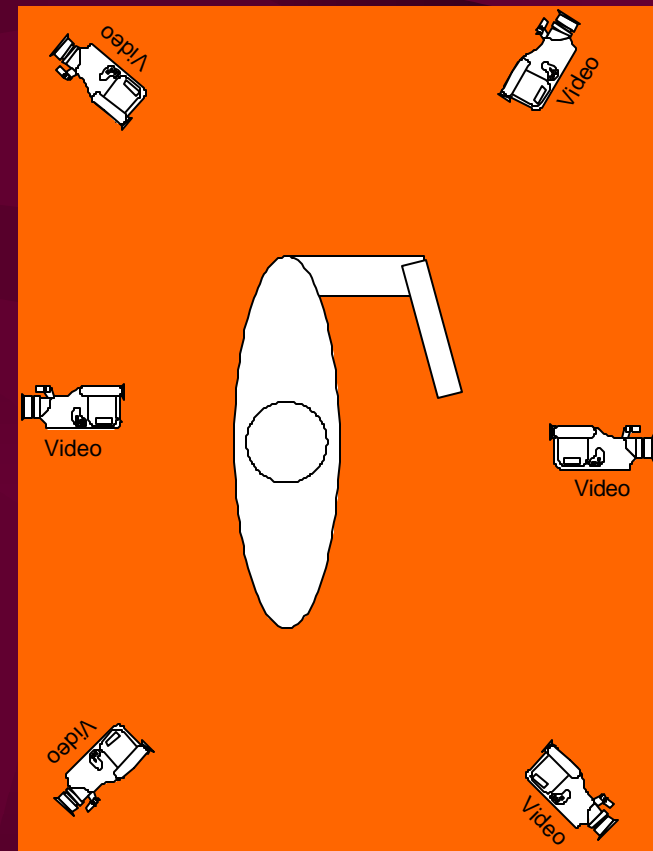
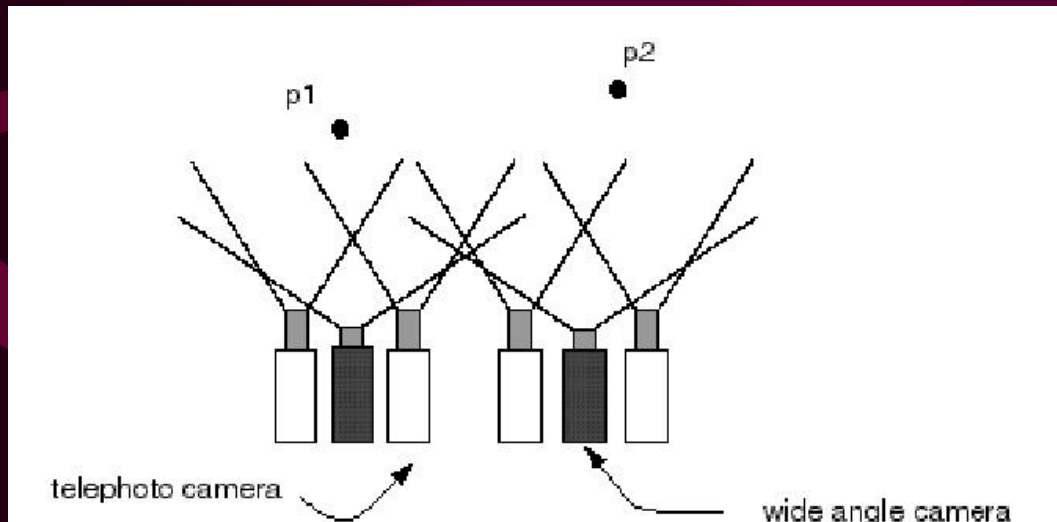


# Architecture of a Smart Camera System



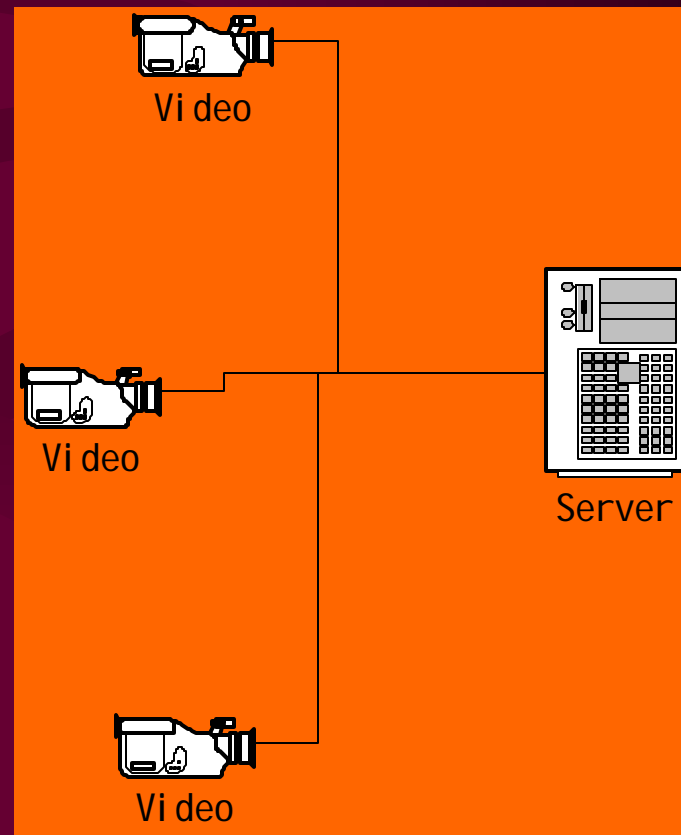
# Multiple Camera Systems

- Electronically Panning & Zooming
- Occlusion



# Centralized Processing

- Storage Cost
- Latency
- Communication Load
- Power



# Centralized Processing vs. Distributed Processing

- Raw Data vs. Abstract Representation
  - Network Load
  - Energy
- Latency
- Processing Power

# Design Time Decisions and Run-time Decisions

- Configuration
  - Processor
  - Special Functional Units
  - Hardware Architecture
  - Operating System
- Efficiency
- Flexibility

# Distributed Video Middleware

- The Concept of Layers
- Trans-platform Development
- Trans-platform Communication

# Distributed Video Middleware

Video Processing Application

DVM

Operating Systems

# Distributed Video Middleware

- Separate video processing algorithm and operating system
- Algorithm researcher focus on video processing
- Facilitate porting application to different systems

# Conclusion and Future Work

- Distributed smart camera systems have advantages over traditional centralized processing systems
- Design time decisions and run-time decisions need to be combined to form an optimal solution
- Distributed video middleware can facilitate research and application development