LectureAssistant

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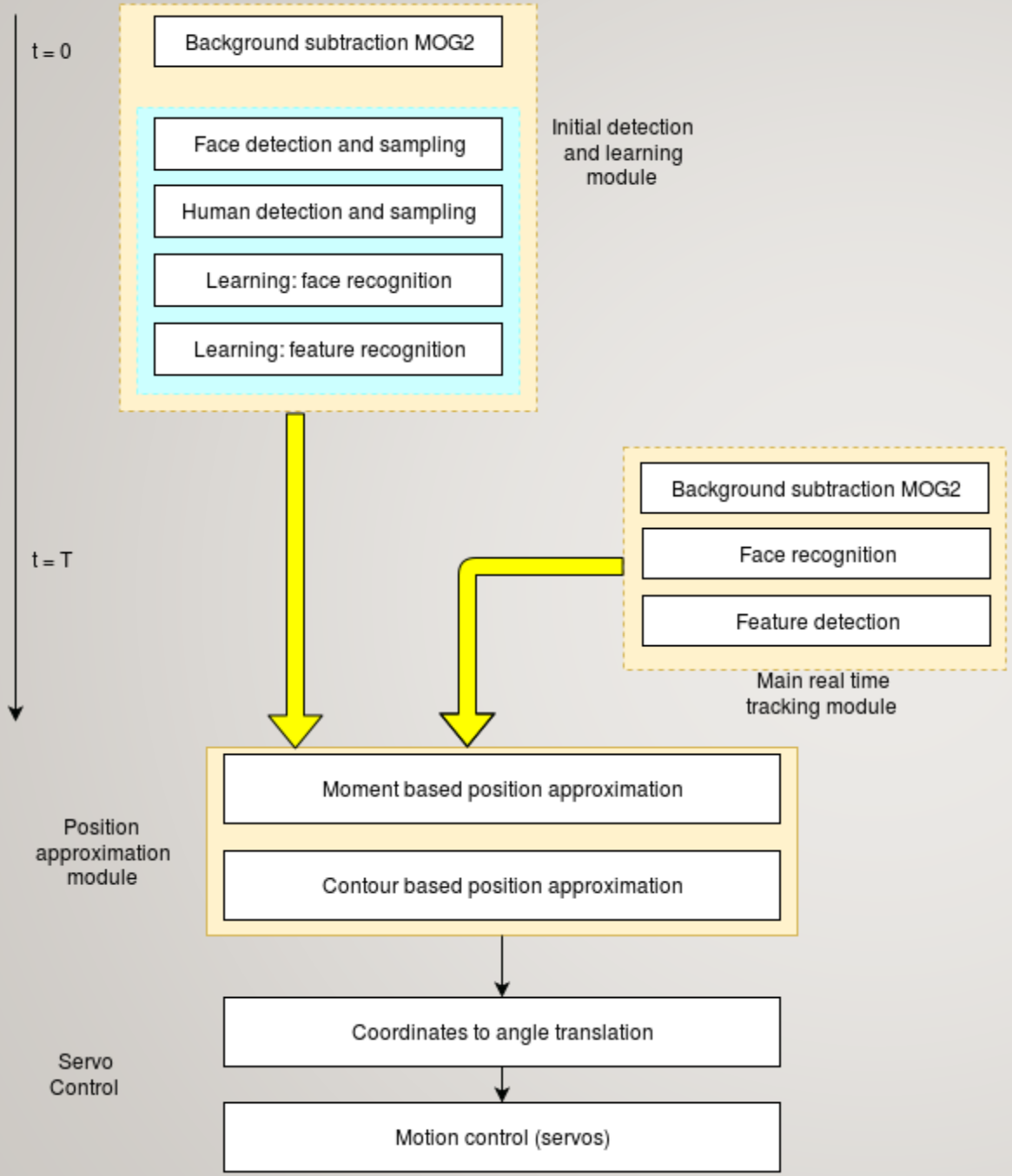
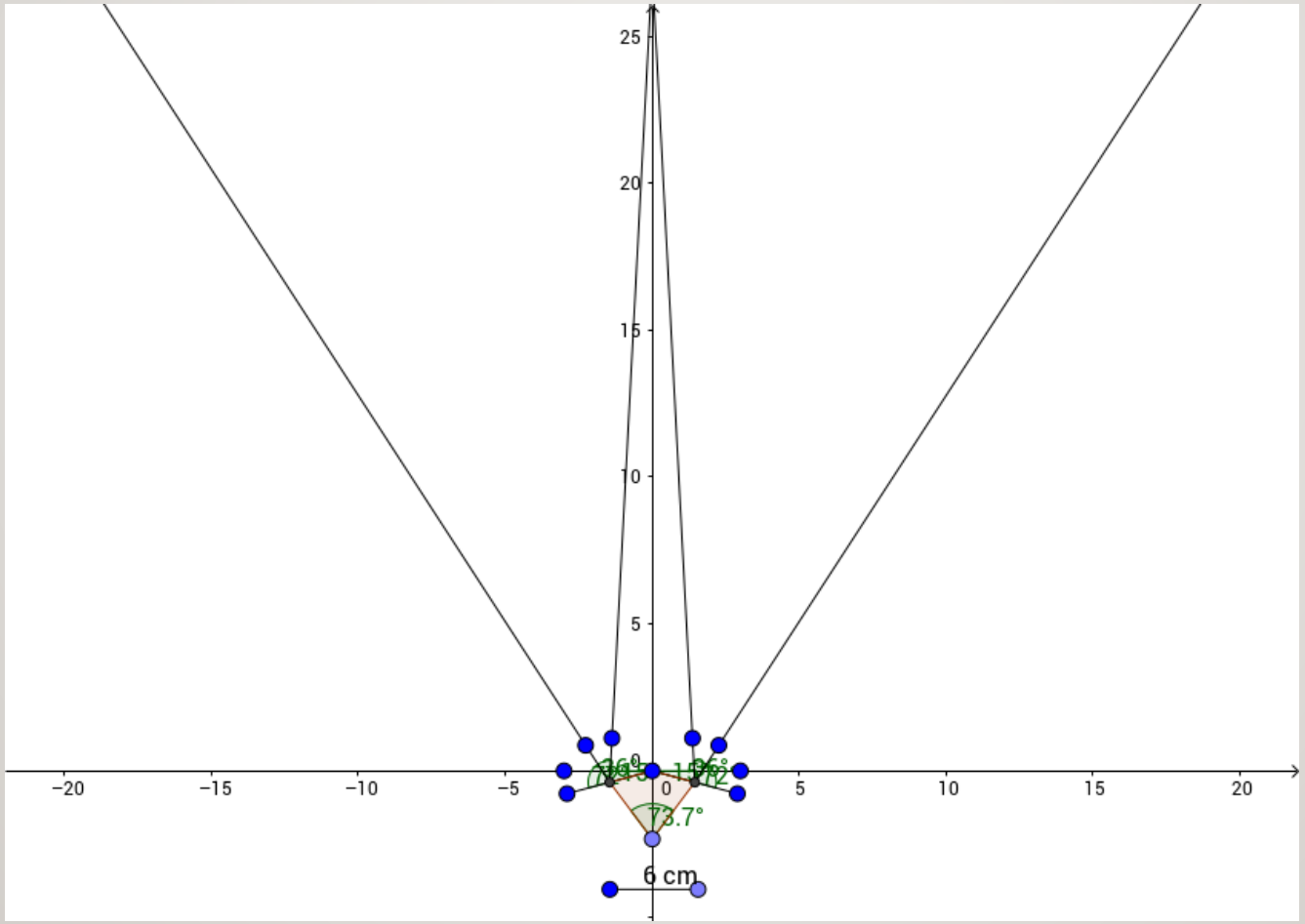
"Imitating Human Cinematography"



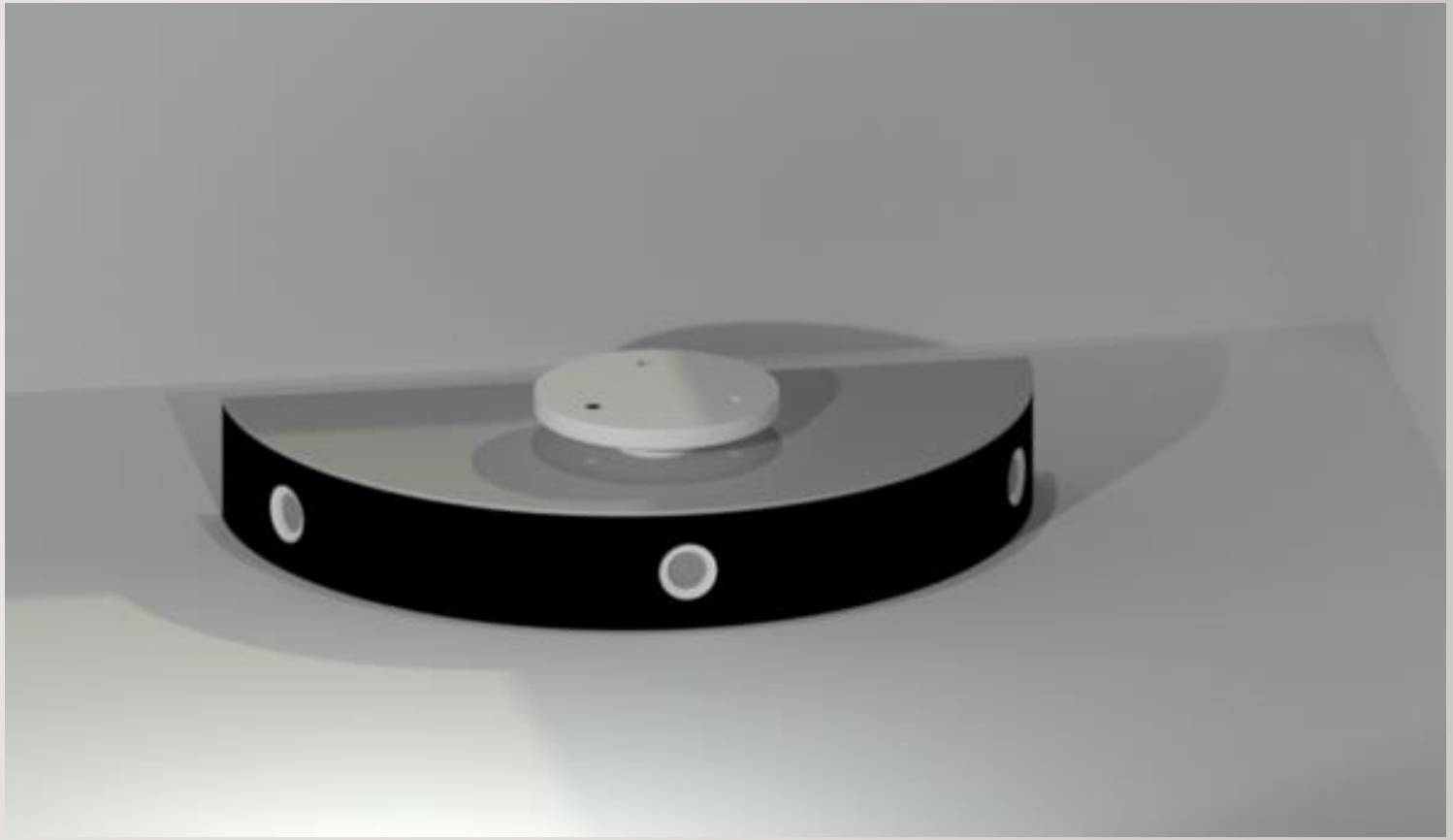
INTRODUCTION

- Automating the talk/lecture recording process with state of the art computer vision algorithms.
- Making the recordings look natural.
- Easily extendable, low cost and easy to integrate.
- Works with existing infrastructure!

Low cost field of view enhancements



LectureRecorder

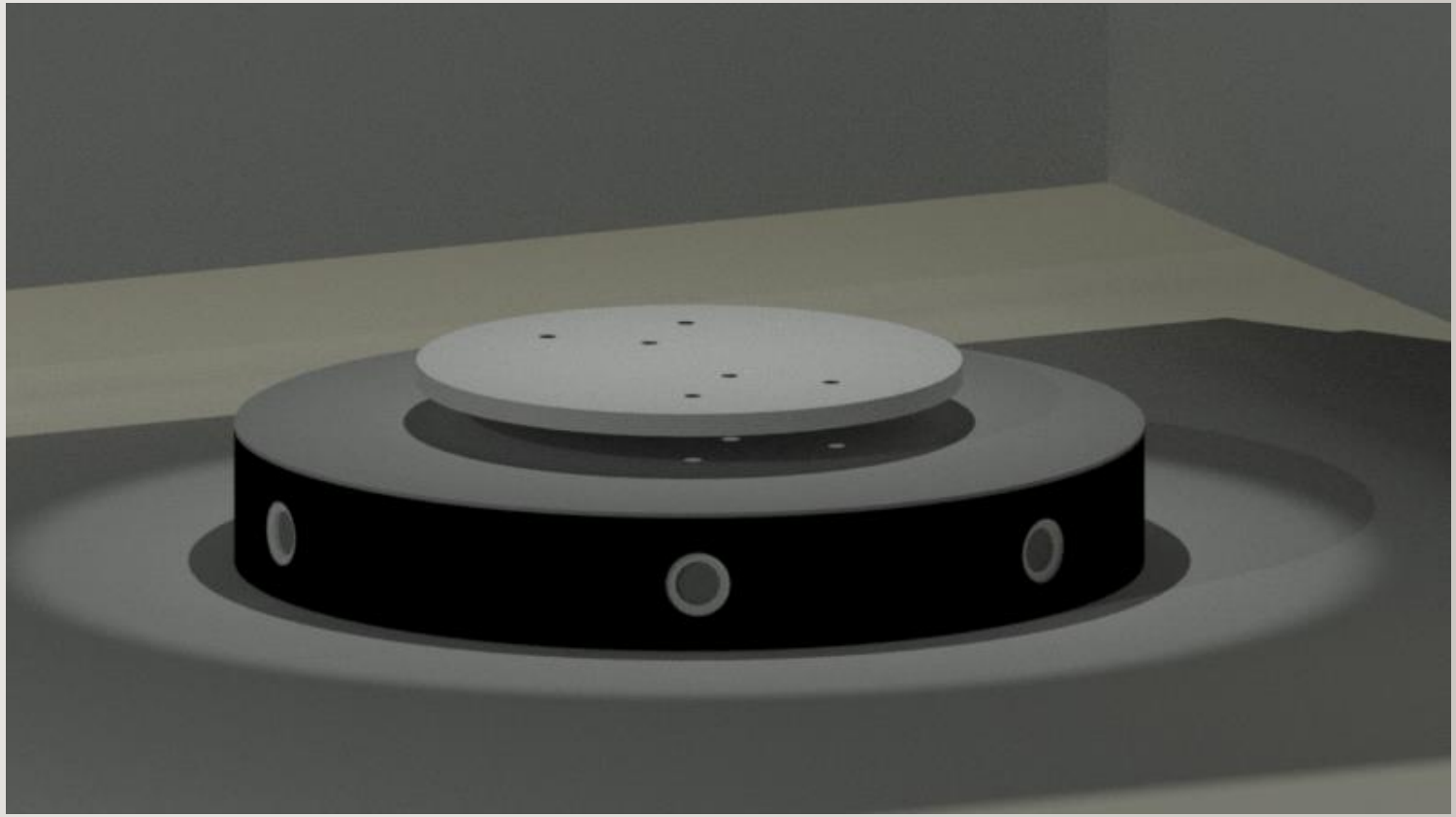


FEATURES

- Tracking in generalized environment with very few assumptions.
- Hardware is cheap and easily extendible to enhance functionality. For example, adding or removing more view finders can be done easily.
- Software can be tuned to work on anything from low powered devices (MOG) to consumer PCs.
- Multiple LectureRecorders can automatically collaborate to produce much more human like, and multi angle shots.
- Economically Feasible
- Easily integreble (can work with any camera, even existing ones)

Hardware Extension

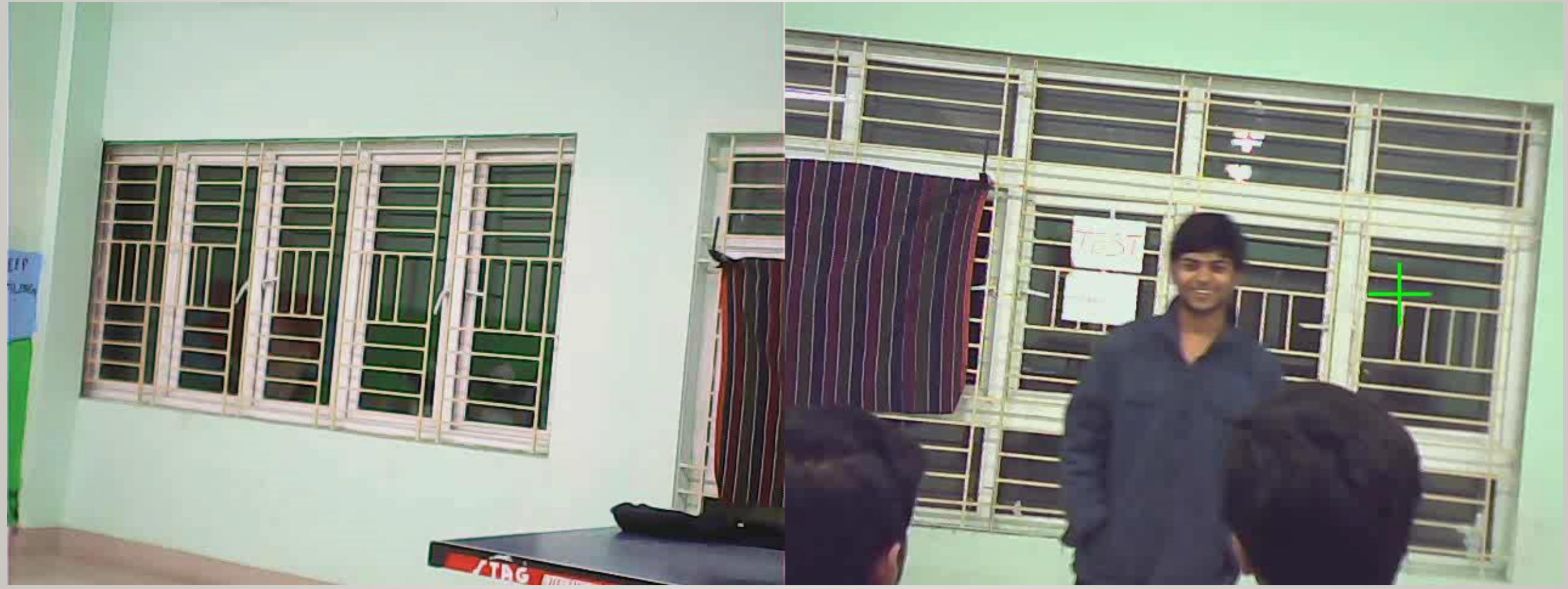
- *360 degree filed of view*
- *Multiple cameras on platform*



Software Extension – Simplest Tracking

Software Extension – Simplest Tracking

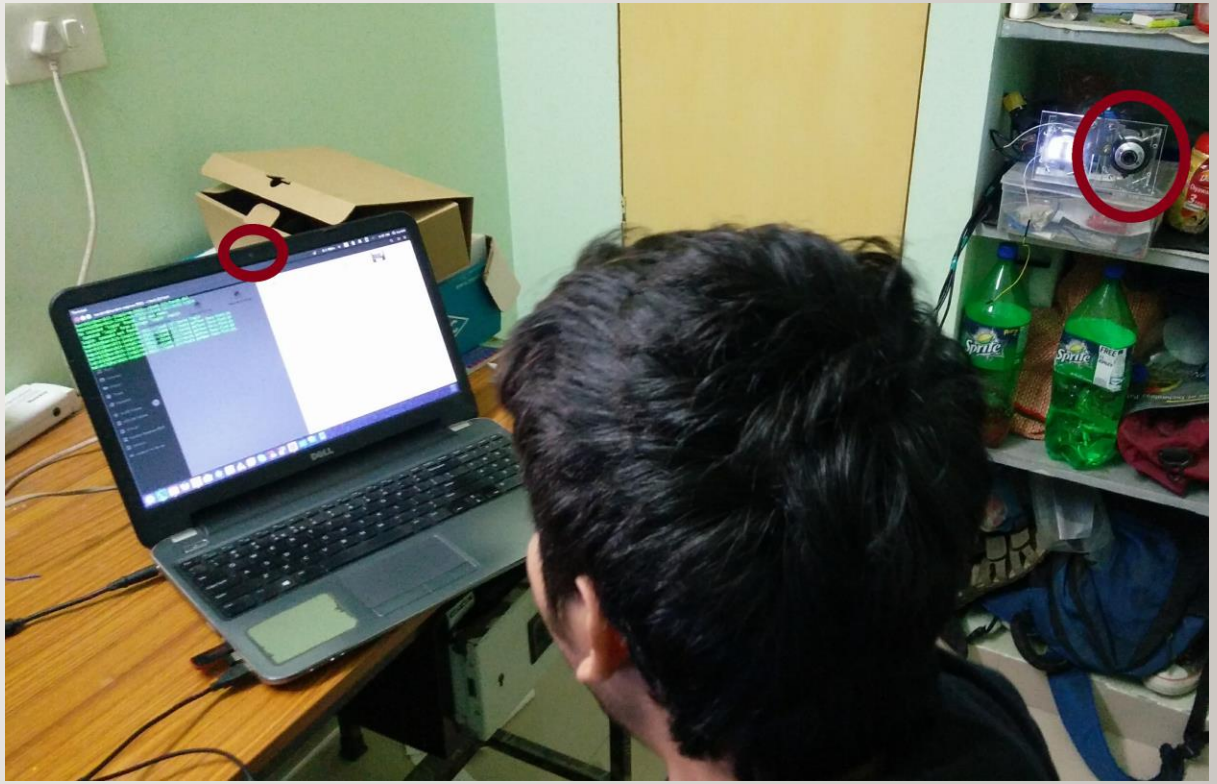
Tracking with obstruction



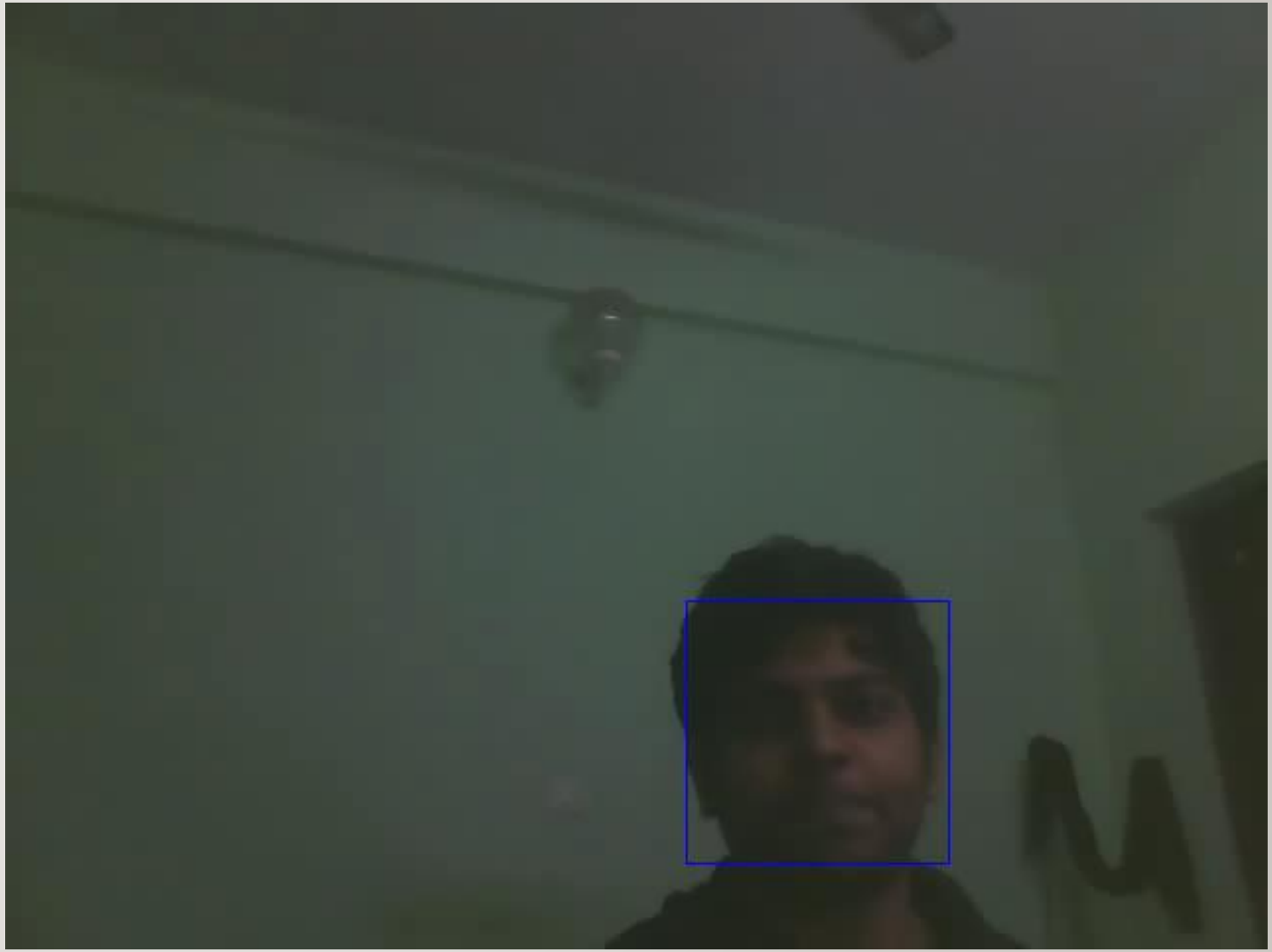
Software Extension – Advanced Tracking

Tracking using Face Recognition

Multi-Angle Shot Setup



Multi-Angle Shot

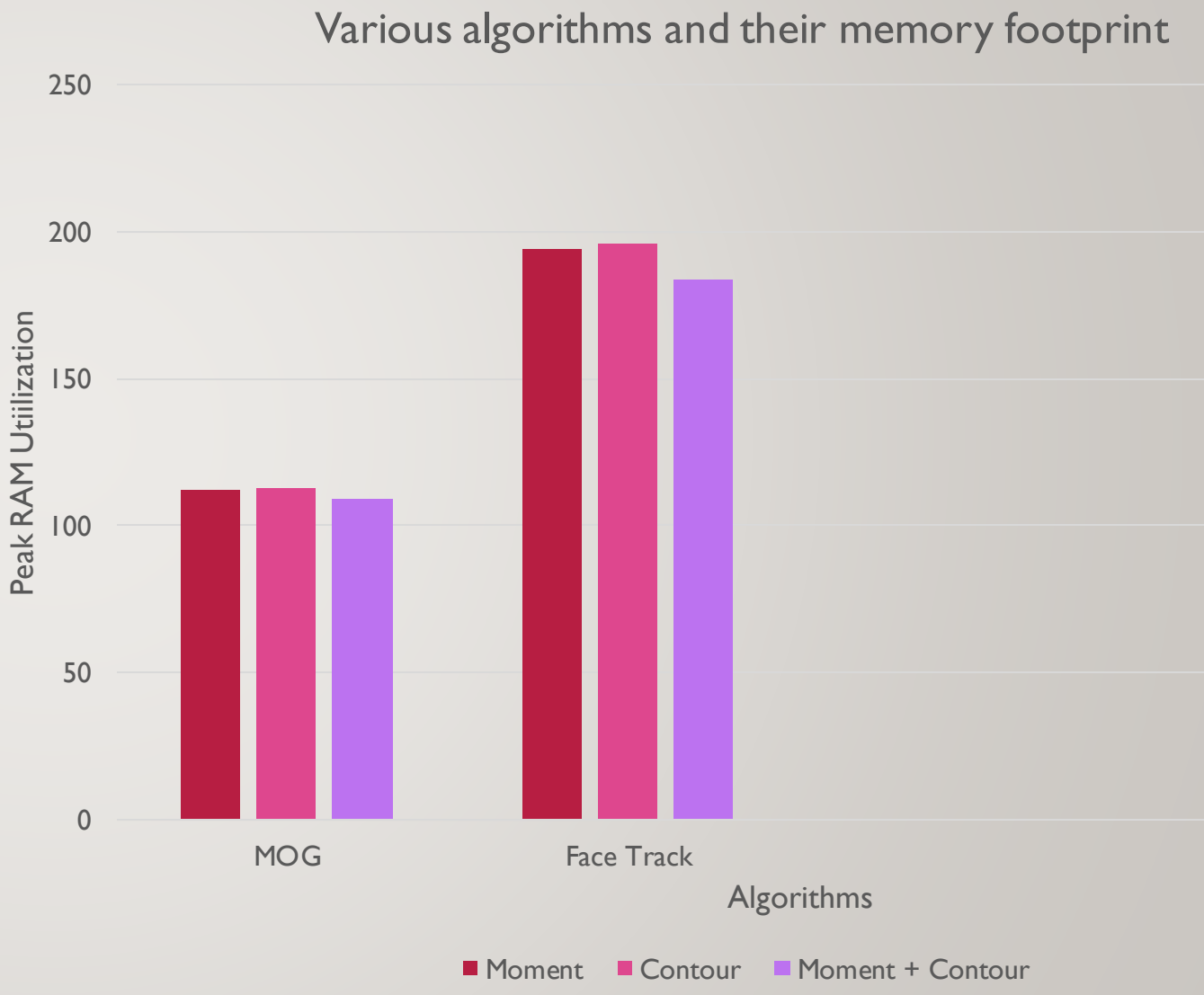


Economics

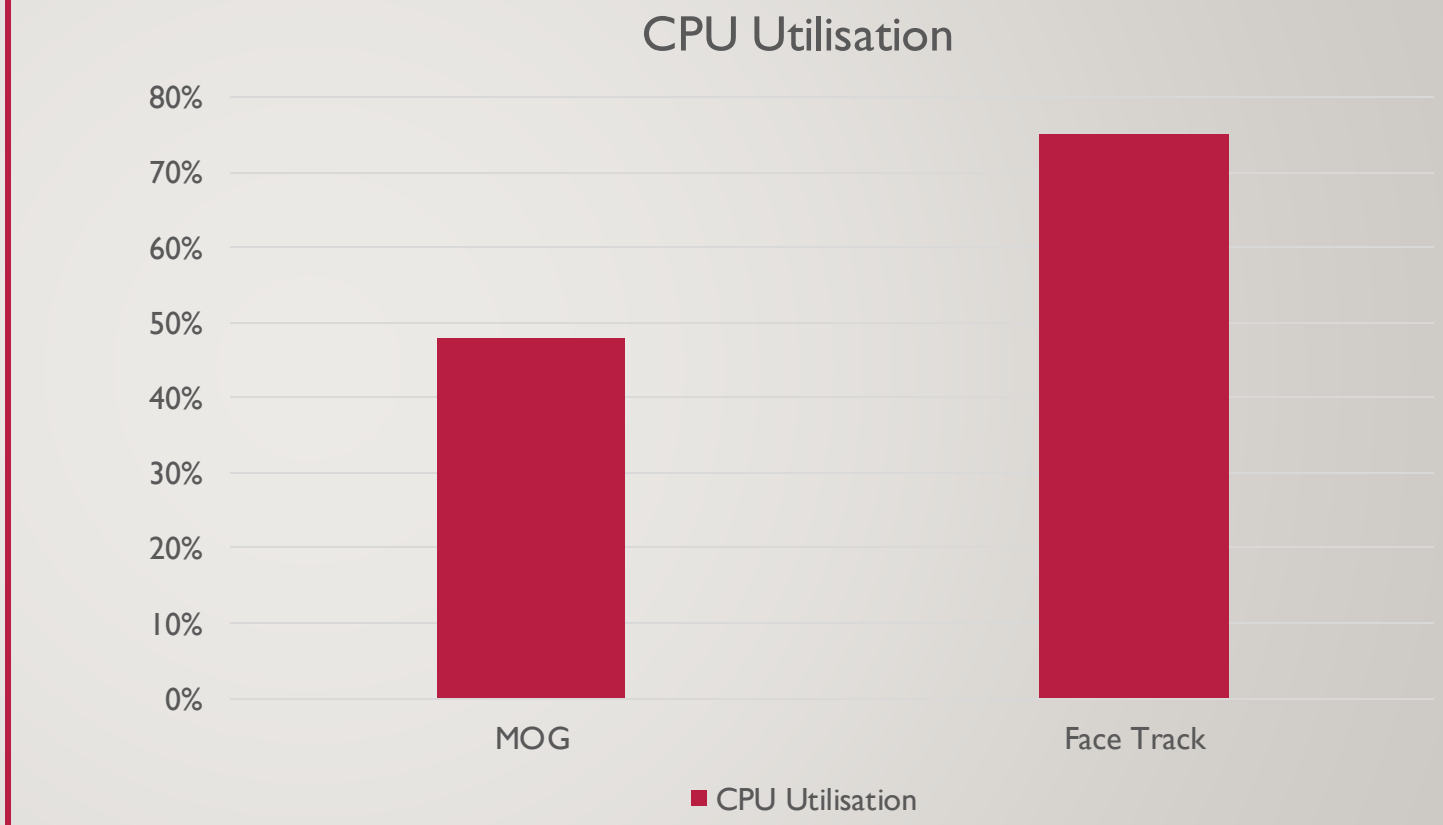
Last End Configuration		**High End Configuration**	
2x View Finder	₹ 600	4x View Finder	₹ 1200
1x Low End Servo	₹ 150	1x High End Servo	₹ 1000
1x Arduino Nano	₹ 250	1x PWM Servo Driver	₹ 1500
1x Raspberry Pi	₹ 2000	2x Raspberry Pi	₹ 4000
Total	₹ **3000**	**Total**	₹ **7700**

Best of all no infrastructural changes required, extensively adaptable and easily integrable.

Memory Profile



Processor Profile



We did it even better

We made it Portable

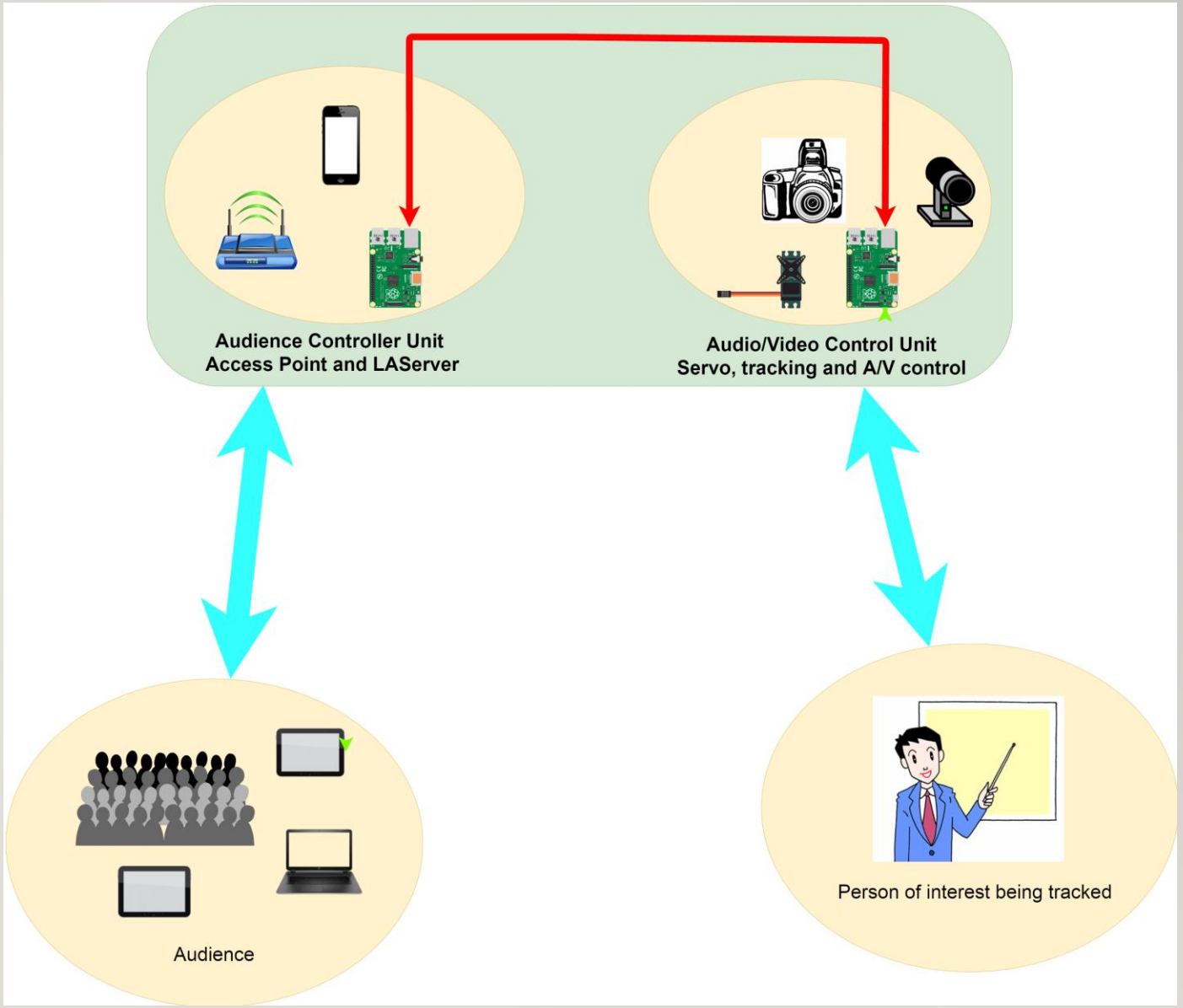
Lecture Bot

FEATURES

- Cheap, lightweight and portable operating on Raspberry Pi.
- Automatic Content Delivery for class lecture, conference presentations, demonstration recording
- Direct Content delivery in augmented classroom.
- Local Area Network and powerful access point
- Lite weight server architecture for content delivery, chat and quiz infrastructure
- Replaces the requirement of a laptop for general presentations
- Small form factor
- Interaction using any mobile device or in build screen

ARCHITECTURE

- Used two Raspberry Pi connected over Ethernet to collaborate.
- One handles everything related to the audience like LA-Server, remote interaction, access point etc.
- Second one handles the tracking, recording and synching – video camera, PTZ motion, mic and Bluetooth recorder.



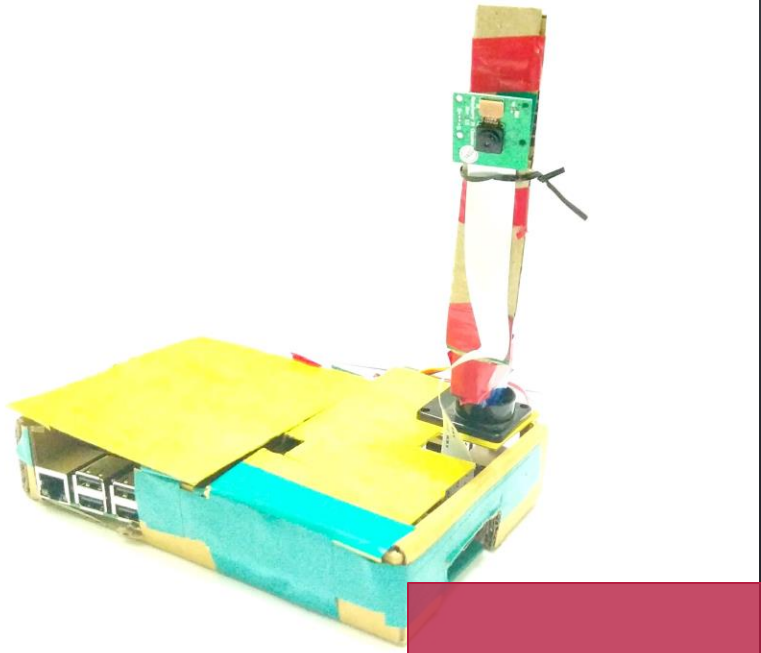
FUNCTIONALITIES ACHIEVED

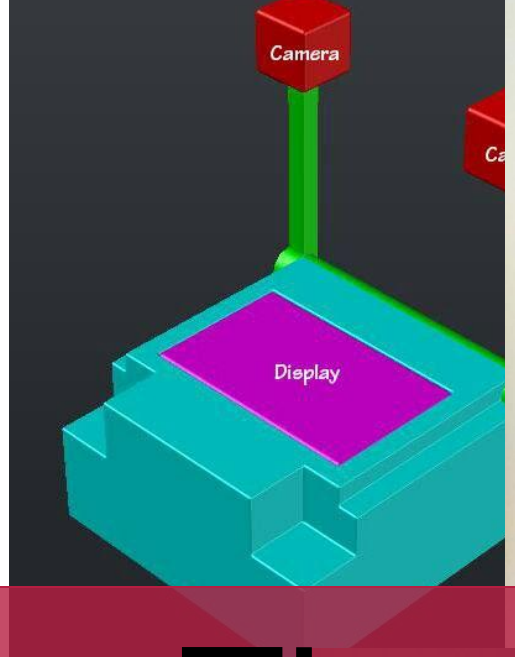
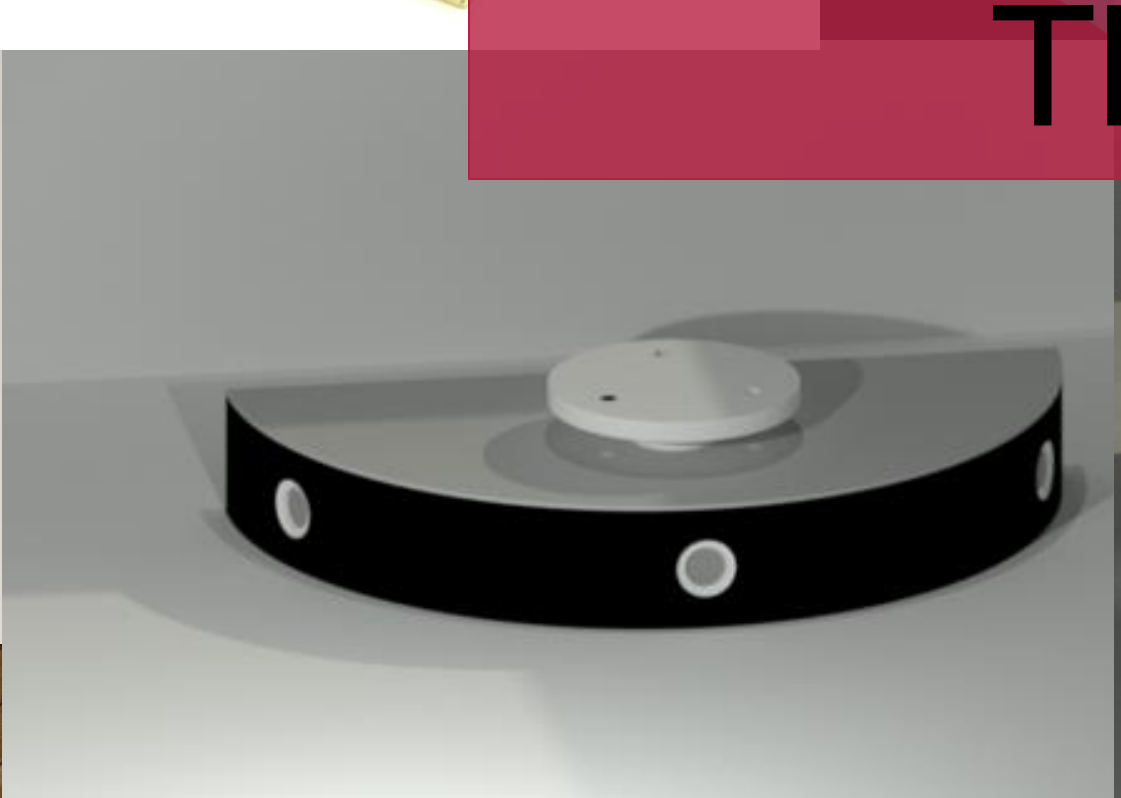
AUDIENCE CONTROL UNIT

- Flask Server Stack
- Chat interface
- Dynamically generate quiz
- Content (slides and other) download
- Access point for auto connection

AUDIO VIDEO CONTROL UNIT

- Primitive Tracking
- Smart phone controlled
- Grab live video stream
- Broadcast live stream
- Record the lectures/talk





Thank You