Team 3

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Status Update

Projection Mapped 3D Object Table

-Built a new, more portable table.

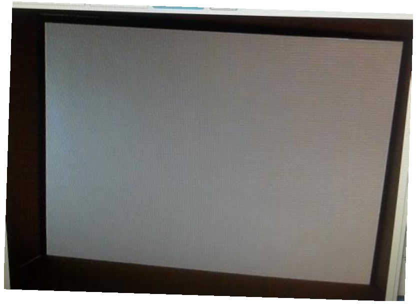
-Acquired pico projector

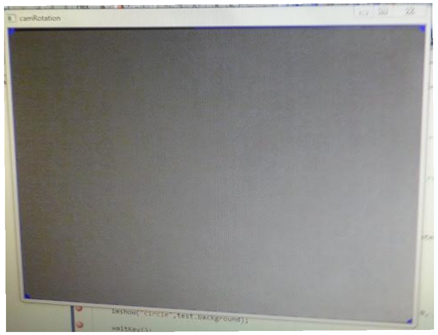
-Still need android platforms, aka old cellphones

-Still need project room (!)

Status Update (Progress)

Camera -> Table initialization working manually

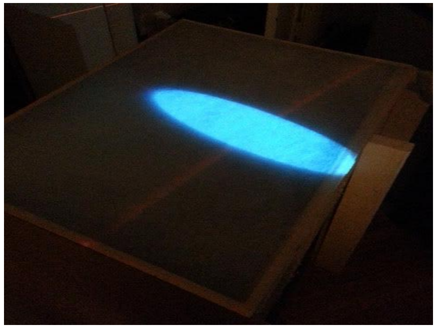


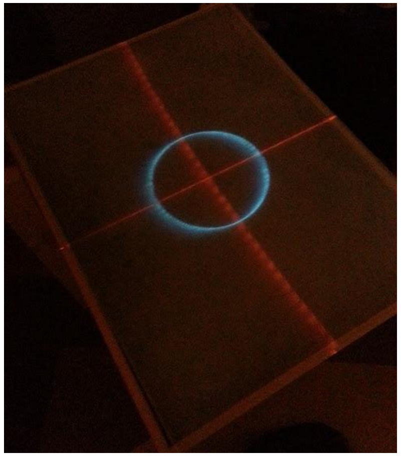


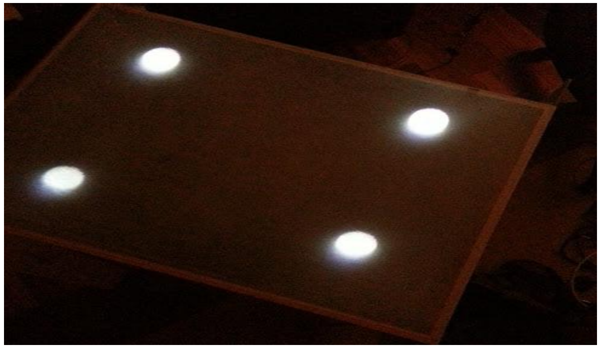
```
imshow("circle",test.background);
waitKey();
```

Projector -> Table initialization semi-automatic

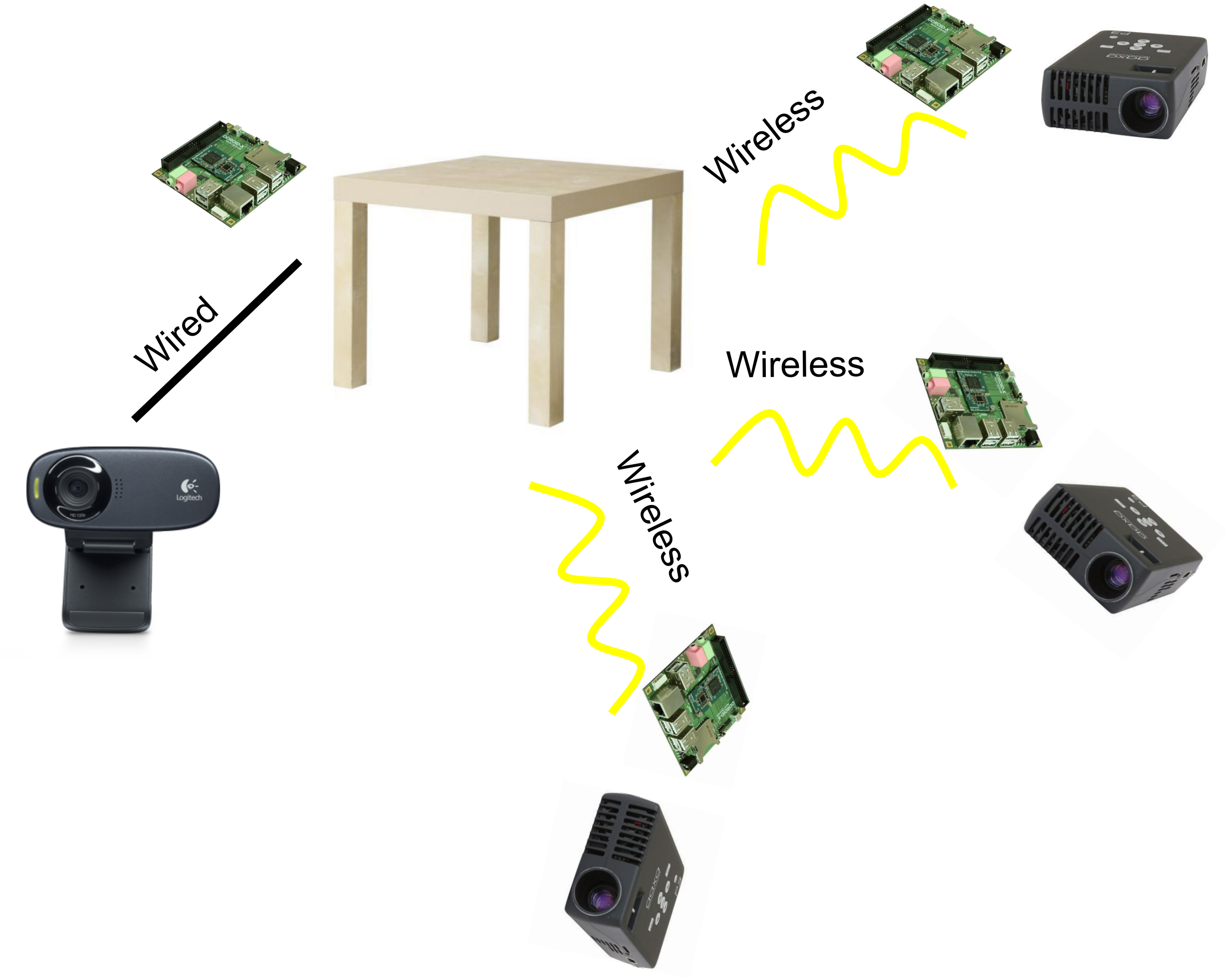
-Added degree of freedom, fixed object vs. world coordinates



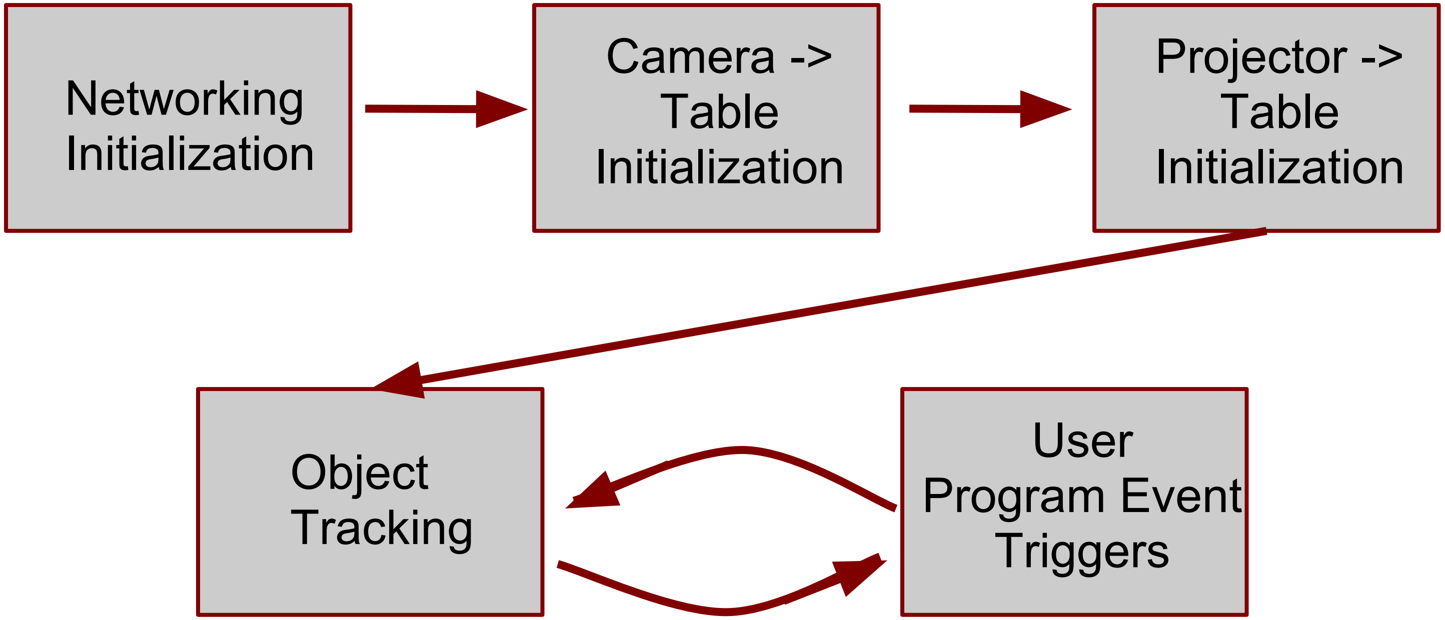




Architecture



Architecture



Networking Initialization

Camera -> Table Initialization

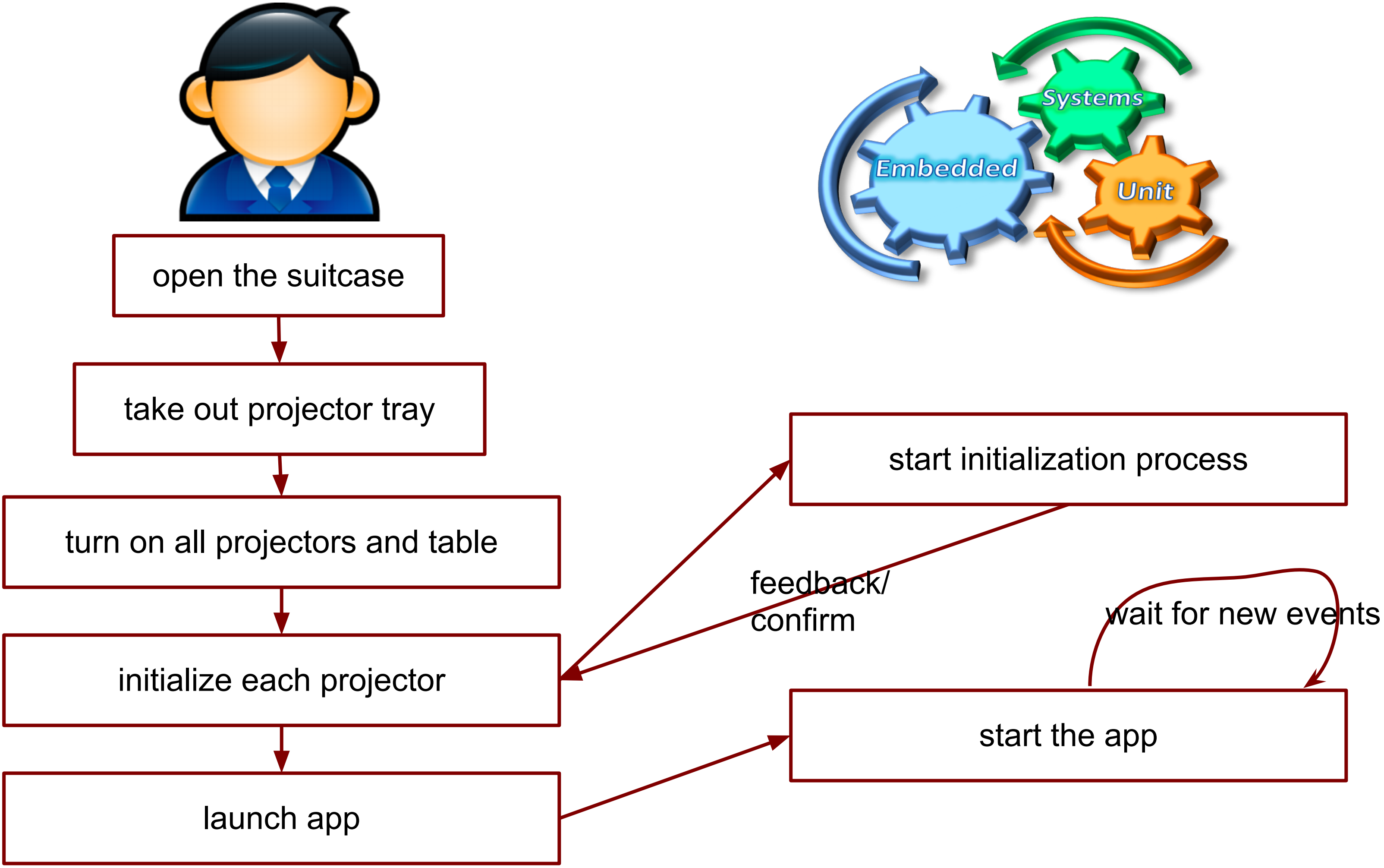
Projector -> Table Initialization

Object Tracking

User Program Event Triggers

addEventListener(Event e, Callback doMethod())

Use Cases (set up stage)



open the suitcase

take out projector tray

turn on all projectors and table

initialize each projector

launch app

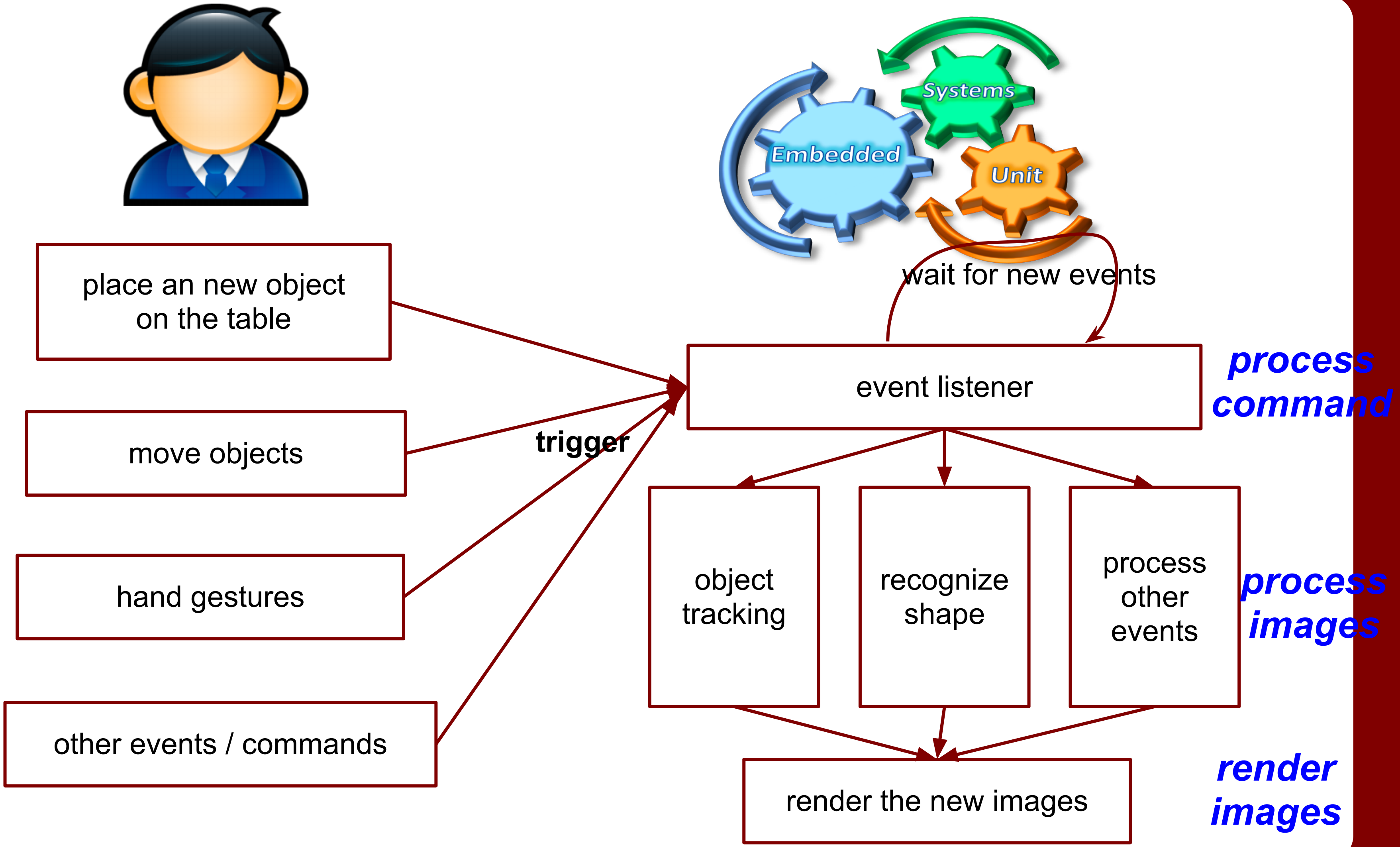
start initialization process

feedback/
confirm

start the app

wait for new events

Use Cases (interaction stage)



place an new object on the table

move objects

hand gestures

other events / commands

trigger

wait for new events

event listener

process command

object tracking

recognize shape

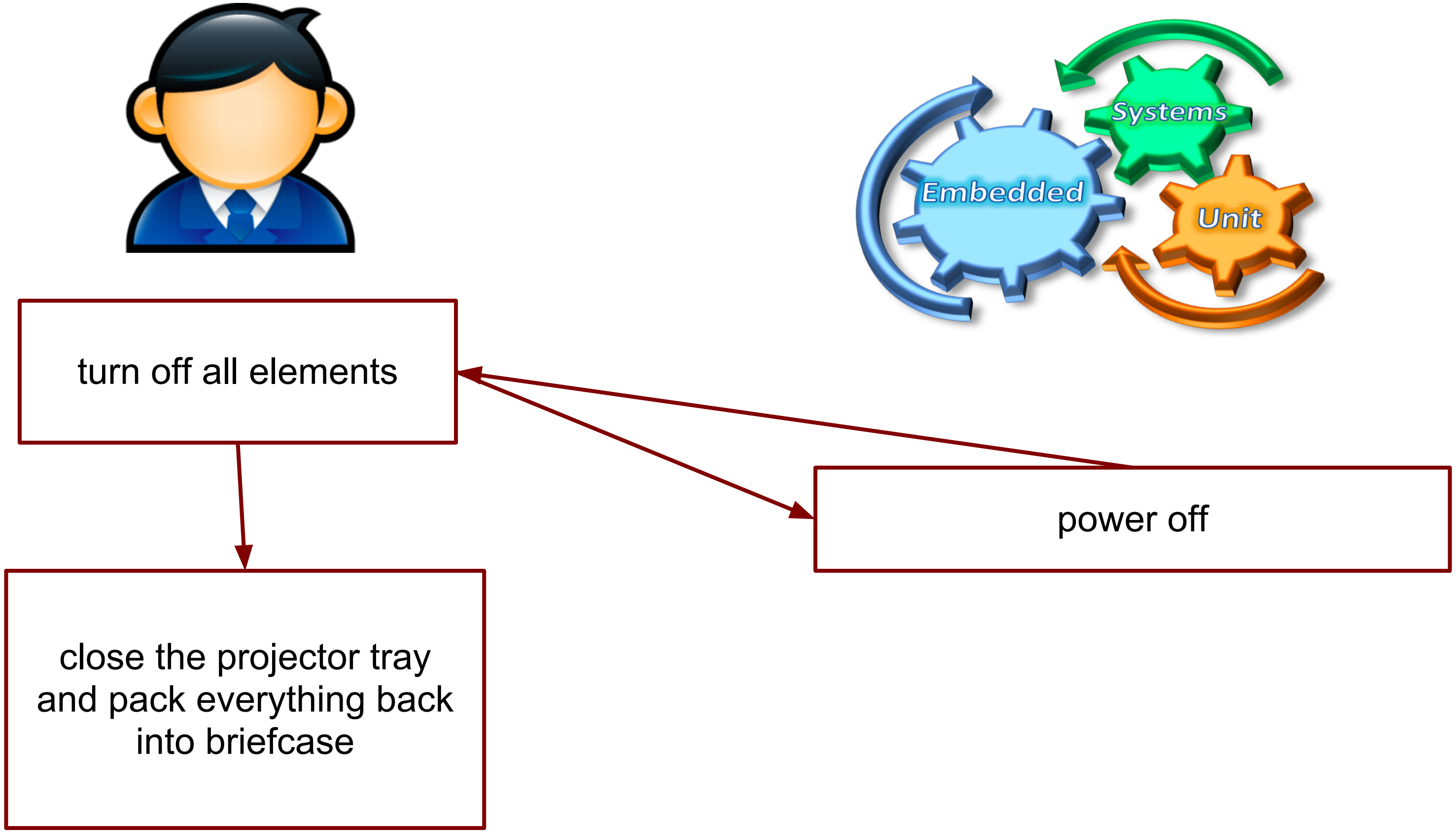
process other events

process images

render the new images

render images

Use cases (clean up stage)



turn off all elements

power off

close the projector tray and pack everything back into briefcase

Risk VS Mitigation

Object tracking is slightly off (software risk)	Avoid mapping to edges/ corners of 3D objects OR focus on slightly smaller surfaces
Projector resolution is limited due to budget constraint (hardware risk)	Avoid cases that requires HD level quality (e.g. architecture usage) and aim for cartoonish graphics
Doesn't work as well in brighter lighting condition (hardware risk)	Present demo in a slightly darker environment/ buy projectors providing higher brightness if budget allows

Backup plans

Plan A: achieve dynamically object tracking

project images accurately with decent photorealistic (e.g. architectural usage)

Plan B: basic board games (e.g. pong) with animations effects OR educational mini-games (e.g. smalllearninglab games)

Plan C: project images/videos from all angles by countering the warping perspective

Division of Labor

Cody - Architecture / API design / Android

Sam - Image Processing

Martin - Pose Estimation

William - R&D