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

Projector -> Table initialization semi-automatic
-Added degree of freedom, fixed object vs. world coordinates
Architecture
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
  - wait for new events

- start the app
Use Cases (interaction stage)

- place an new object on the table
- move objects
- hand gestures
- other events / commands

Event listener

- trigger
- object tracking
- recognize shape
- process other events

Wait for new events

Process command

Process images

Render images
Use cases (clean up stage)

1. Turn off all elements
2. Close the projector tray and pack everything back into briefcase
3. Power off
<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object tracking is slightly off (software risk)</td>
<td>Avoid mapping to edges/corners of 3D objects OR focus on slightly smaller surfaces</td>
</tr>
<tr>
<td>Projector resolution is limited due to budget constraint (hardware risk)</td>
<td>Avoid cases that requires HD level quality (e.g. architecture usage) and aim for cartoonish graphics</td>
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<tr>
<td>Doesn't work as well in brighter lighting condition (hardware risk)</td>
<td>Present demo in a slightly darker environment/ buy projectors providing higher brightness if budget allows</td>
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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