Team Aether (#14)

Project Architecture

STATUS UPDATE

- Updated project idea and parts list
  - Projecting onto compressed air
  - Using Raspberry Pi instead of phone
- Parts acquired except for honeycomb
- Current goal:
  - Project display onto compressed air
  - Start working on interfacing Kinect with raspberry pi

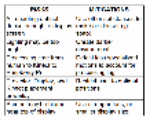
ARCHITECTURE

USE CASES

- Use air as a bigger display to make the content easier to see.
- Will provide users with a 3D esque image. This will provide a better user experience.
- It has a lot of potential in the advertising industry. People can see life-size 3D esque images of models.
- Can be used as an alternative to large size display screens. It makes the user experience more interactive and engaging.

INTERACTION DIAGRAM

RISKS AND MITIGATION



PLANS & BACKUPS

- Plan A:
  - Application runs on display, using Kinect gestures (Suggestions for application are welcomed)
- Plan B:
  - Cons: Screen Works poorly
  - Solution: Use smaller screen with proportionally scaled down application
- Plan C:
  - Cons: Screen doesn't work at all
  - Solution: Project onto a transparent surface

WORKLOAD DIVISION

- First Stage
  - Build display by shooting up compressed air (Gautham)
  - Interface Kinect with Raspberry Pi (Joseph and Jessica)
  - Work with Kinect gesture recognition (Ethan)
- Afterwards:
  - Work on interactive app and map the gestures to effects on display shown

QUESTIONS?
COMMENTS?
CONCERNS?

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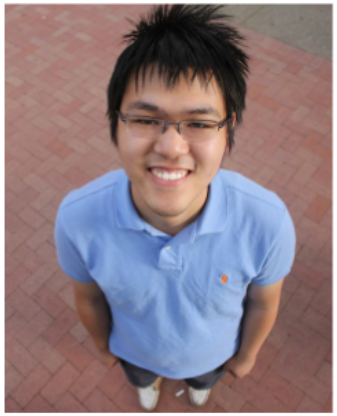
Joseph, Jessica, Eshan, Gautham

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ARCHITECTURE

- Input handler
- Gesture recognition
- Data sent to Raspberry Pi

3

- Receive gesture info from kinect
- Match gesture to effect on displayed application
- Send result of effect out through HDMI port

4

2

5

1

1. User interfaces with screen
2. Kinect picks up user gestures
3. Raspberry Pi processes gestures from Kinect
4. Sends display to projector
5. Projector displays result onto compressed air

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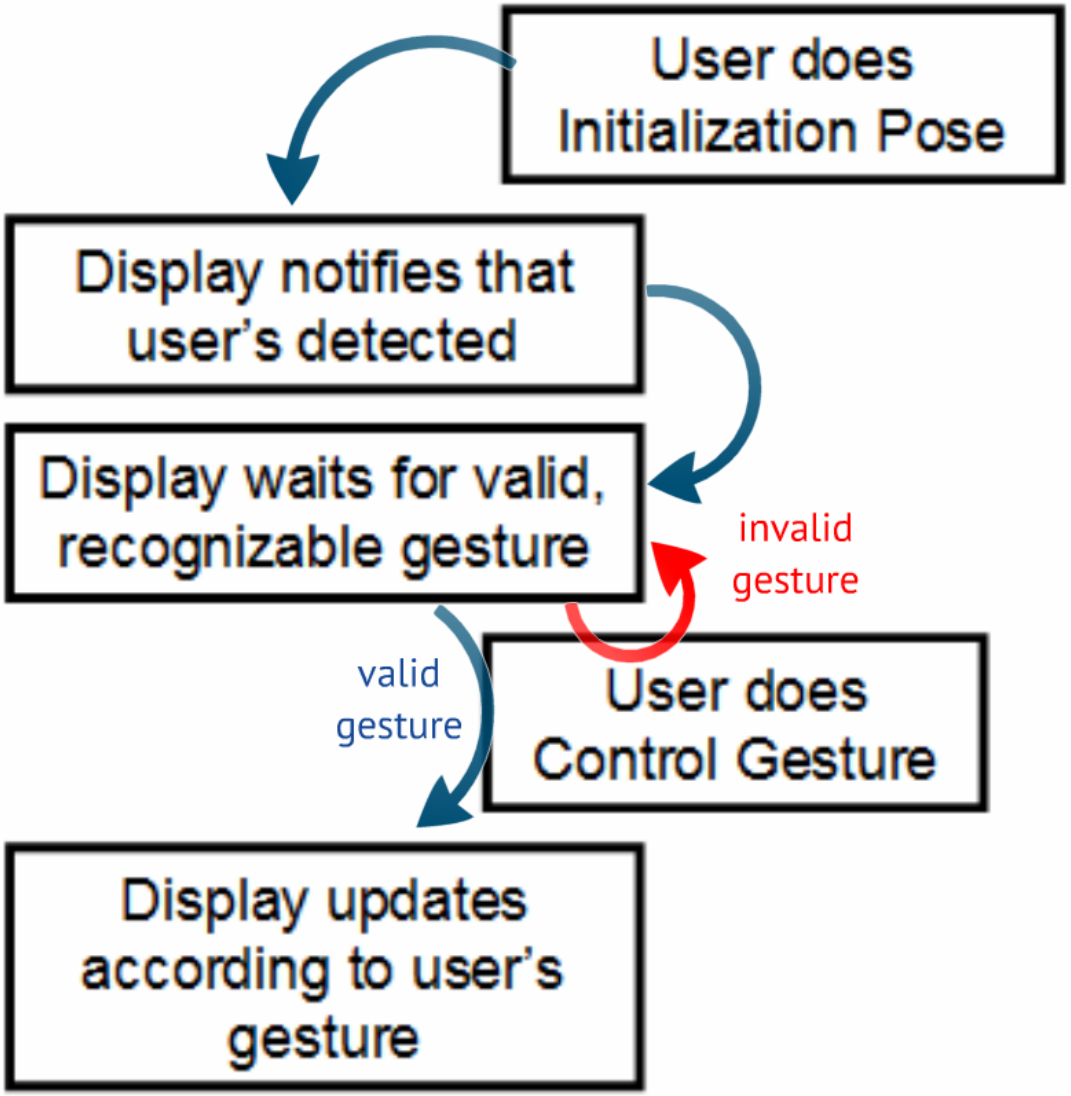

RISKS AND MITIGATION

RISKS	MITIGATIONS
Air shooting out not dense enough to display screen	Use other substances to make air denser (ie: soap)
Lighting may be too bright	Create darker environment
Processing time from human to Kinect to Raspberry Pi	Detect less specialized motions to account for processing lag
Projector, Display, and Kinect placement unwieldy	Restrict user to optimal positions
Screen may be blurrier near top of display	Use stronger fans, or smaller display size

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