

Super-Project Proposal Assignment

Embedded Interface Design

with **Bruce Montgomery**



Learning Objectives

- Students will be able to...
 - Decide on their super-project approach for the 2nd half of EID

Choices...

One, you can do the Super-Project I outline for the last three project submissions for EID – “The Magic Wand”

OR

Two, you can roll your own Super-Project!

For either one, this work covers Projects 4 - 6

- Project 4 – Design & UX work
- Project 5 – First part implementation, UX tests
- Project 6 – Final implementation, demonstrations



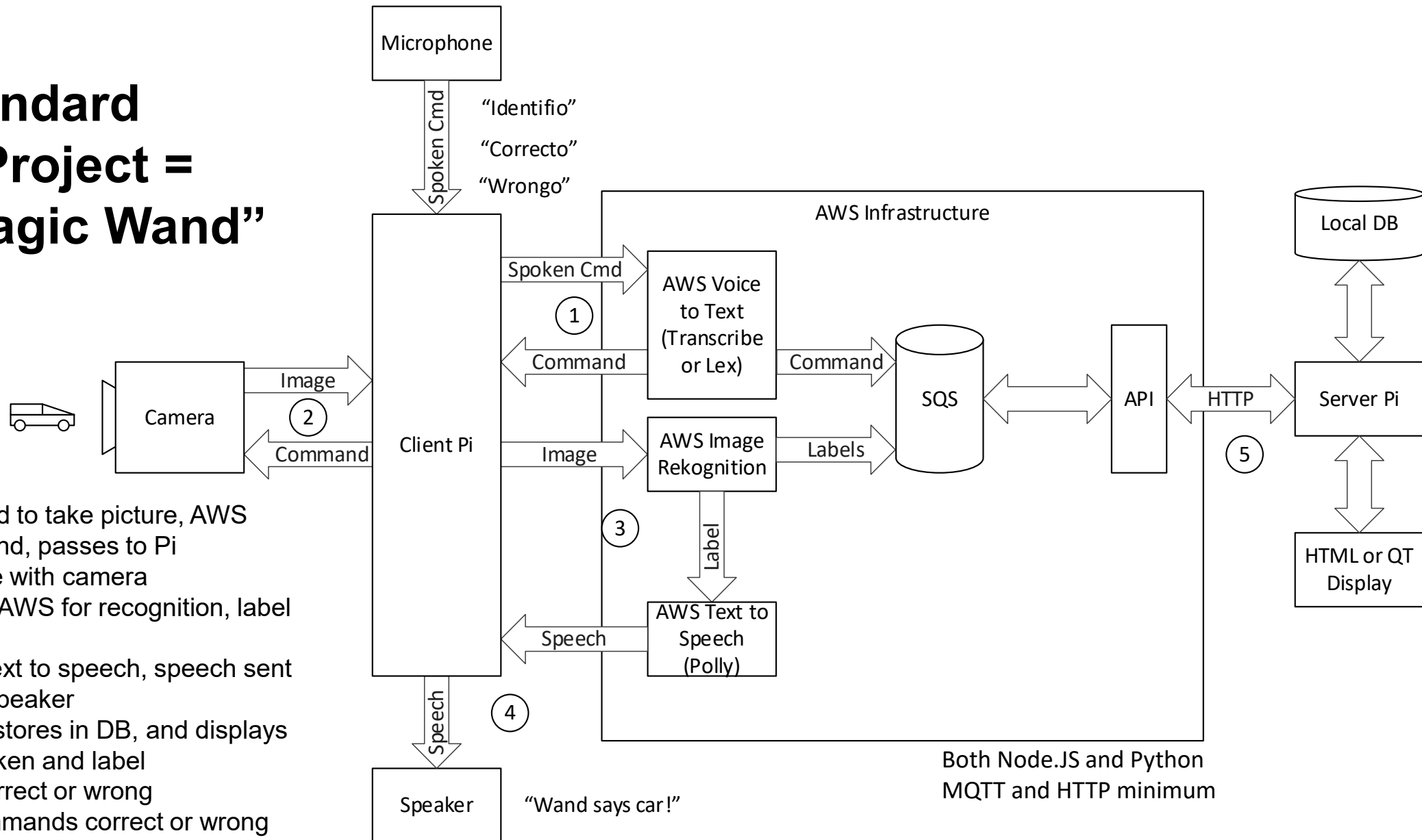
The Standard Super-Project = “The Magic Wand”

- Client Pi
 - Voice activated
 - Camera, Microphone, Speaker
 - Image recognition
 - Voice output
- Server Pi
 - Database of transactions
 - Track correct vs. not correct images
 - Track recognized vs. unrecognized commands
 - Show last image captured and label(s) applied
 - QT or HTML UI



The Standard Super-Project = “The Magic Wand”

- 1) Voice command to take picture, AWS parses command, passes to Pi
- 2) Pi takes picture with camera
- 3) Picture sent to AWS for recognition, label created
- 4) Label sent to text to speech, speech sent to Pi for local speaker
- 5) Server tracks, stores in DB, and displays
 - last image taken and label
 - % images correct or wrong
 - % voice commands correct or wrong



Your Custom Super-Project: Required Elements

- Two Pi's or One Pi and another computer or microcontroller
- One Pi-connected Sensor (minimum)
- Three communication protocols (minimum)
- At least a QT or HTML UI (if not both)
- AWS for Pi IoT connection
- At least one other AWS services
- Persistent data storage somewhere (database)
- An AWS API Gateway for something
- Message Queueing for something
- Code elements in both Python and Node.JS

- Will negotiate on content for a really cool concept...



Your Super-Project Submission

One, submit a PDF with the members of your team, and state that you'll be doing the default provided super-project "The Magic Wand"

OR

Two, submit a PDF with the members of your team, and the proposal for the super-project you'd like to do:

Include:

- Project title and team
- Project concept (paragraph)
- List of project elements vs. required elements
- High-level system diagram
- Any additional hardware needed

Either choice, Super-Project Proposals will be due on Friday October 11.



Your Super-Project Submission

Please do talk to me or the SAs to work out your topic!

Sensor and project ideas are everywhere – be creative!



Next Steps

- Project 2 due Monday 10/7 before class
 - Please bring your systems into class for demonstrations
 - Make sure you get your AWS accounts!
- Super Project Proposal (not graded, but required) – Friday 10/11
- Quiz due Friday at class time, new Quiz up Fri/Sat – due in a week
- EID Midterm is Wednesday 10/16 in class
- Class staff available to help
 - Shubham - Tues 12-2 PM, Fri 3-5 PM in ECEE 1B24
 - Sharanjeet - Tues 2-3 PM, Thur 2-3 PM in ECEE 1B24
 - Bruce - Tue 9:30-10:30 AM, Thur 1-2 PM in ECOT 242

