IOWA STATE UNIVERSITY

Department of Electrical and Computer Engineering

Dec15-03

Advisor: Josh Bertram
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Senior Design Project Proposal Form

Client/Company/Organization: Jay Becker

Submitter (name): Jay Becker **Email**: coln.panic@gmail.com

Project Contact: Jay Becker **Email**: coln.panic@gmail.com

Project Title:

Modular audio "mixer"

Project Abstract (include **ALL project goal(s)**, design constraints, and technical approaches and tools):

The overall goal is to have a modular "mixer" of sorts, composed of several classes of components such as: main control/brain box, inputs, and outputs. This would not be a mixer that you would use for recording music, but more of a mix and match many-to-many interface between multiple audio sources and outputs for casual use. Affordability is important, and manufacturability would be great but not necessary for the initial project.

Main Control: This piece is the brains of the operation, I envision the various I/O passing through this piece and probably ultimately where the mixing takes place. Use of something like a Raspberry Pi for this piece would allow it to run networking software to enable smartphone or browser control.

Inputs: The simplest form would be just an 3.5mm input jack and some method of connecting to the main control bus. More advanced features could be a knob or slider for volume control, LEDs indicating input level, or even a bluetooth interface.

Outputs: Largely the same as inputs, just the reverse direction.

Multiple phases would likely be necessary: investigation, experimentation, and building the prototype.

Expected Deliverables (include expected schedule, cannot be open-ended, **must list at least one deliverable**):

Functional, even if minimal, prototype of all three parts.

Specialized Resources Provided by Client (be as specific as you can):

none

Anticipated Cost: unsure **Financial Resources Provided by Client** (if any): $tbd

NOTE: General Resources Provided by ISU/ECpE: MSDNAA software, and access to resources in ECpE teaching and research labs, e.g., electronics, embedded systems, etc.

Enter # Students Preferred/Required:

- ◯ Electrical Engineering
- ◯ Computer Engineering
- ◯ Software Engineering
- ◯ Other (specify):

Special Skills Required of Students (be specific):

- audio experience *NOT* required

- this is probably a bit more hardware than software, so heavier on that end of the spectrum. Beyond that I am open to recommendations for how many of what type.

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Anticipated Client Interaction (estimate):

☒ 1 meeting per week
☒ phone, ☒ internet, ☐ live

☐ 1 meeting per month
☐ phone, ☐ internet, ☐ live

☐ 2 or more meetings per month
☐ phone, ☐ internet, ☐ live

☐ 1 meeting per semester
☐ phone, ☐ internet, ☐ live

Meeting ABET Criteria

Please rate the following statements as they relate to your proposed project:

0 – Not at all *1 – A Little* *2 – Somewhat* *3 – A Lot* *4 – Completely*

On this project, students will need to apply knowledge of mathematics, science, and engineering	☐ 0	☐ 1	☒ 2	☐ 3	☐ 4
This project gives students an opportunity to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	☐ 0	☐ 1	☐ 2	☐ 3	☒ 4
This project involves students from a variety of programs, i.e., SE, EE, and CprE	☐ 0	☐ 1	☐ 2	☐ 3	☒ 4
This project requires students to identify, formulate, and solve engineering problems	☐ 0	☐ 1	☐ 2	☒ 3	☐ 4
This project gives students an opportunity to use the techniques, skills, and modern engineering tools necessary for engineering practice	☐ 0	☐ 1	☐ 2	☒ 3	☒ 4

Project Approval – *for use by ECpE Senior Design Committee*

☐ Approved ☐ Not Approved

☐ Faculty Advisor Assigned: _____

☐ Project Number Assigned: _____