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**MUS 315 Final Project Proposal**

My goal is to create an application that lets a user create multi-instrumental songs by only using their voice. The basic idea is to have a user record individual instrumental lines which can then be looped and layered to produce an ultimate song. This is dependent upon me being able to work with software for processing audio into midi from an internal machine microphone. From the preliminary research I’ve done it does look like AudioKit and SonicApi should both be able to provide this functionally (both are effectively free, however SonicApi does requires payment for larger requests to their API). Although I would ideally have this be an iPhone app, I have no experience with developing for mobile and so will probably stick with keeping this as a web app for ease of development. I intend to focus predominantly on producing functionality, and if I find myself with extra time I will work on a nice user interface.

I envision the app breakdown as follows:

Available instruments are drums, bass, lead guitar, rhythm guitar, saxophone, and perhaps keyboard. Each instrumental line will be recorded individually as selected by the user, and then layered either automatically (i.e. each line would be an overdub of the previous recordings) or via a simple drag and drop interface. When the user sings the data is converted to midi, then recorded and outputted using the assigned instrument patch. This should be fairly straightforward and should really just require manipulations of octave and assigning patches for bass, lead guitar, and sax, assuming the conversion software works smoothly. I do not intend to worry about assigning any rhythmic constraints or automatic modifications, however I would like to provide the user with a metronome to follow so their various instrumental lines all sync up smoothly.

For rhythm guitar I think it would be fun to translate the users input into power chords. This should require simply converting the users input note into 3 note chords. Additionally it would be nice to find a way to incorporate user control over levels of guitar distortion (and other effects), but that would be a low priority feature.

For drums I think this is best handled by breaking the drums up into kick, snare, hi-hat, maybe tom fills, and a crash (I’m not really a drummer but from what I know those I believe are the essentials). The user can then record each subsequent drum component as a 3-4 piece overdub. The only way I can envision working around this is to have the user “drum” on a “bop” like syllable and have them use lower pitched bops for kick, higher for snare, and then having a similar effect for hi-hat and crash. Otherwise the only other variable I can think of would be to maybe try and build in some mechanism for detecting change in volume.

If I some how manage to get all of this done with a halfway decent interface and still have more time to work on it, I could also try and set up a way to hum individual notes to form chords that are stored (lets say a user gets up to 8 chord slots per song), and then if the user goes into “chord mode” they can play hum the root of each chord and the whole chord will be played by the assigned instrument (this would probably be more for guitar/keyboards).