Concept

- Turning video of guitar play to guitar tabs.
- Possible to turn audio to sheet music
- Sheet music doesn't offer much in the way of how to play a song. (Interpretation)
- Guitar tabs show the player where and how to play a song.
- For this we need to know where the player is playing the song on the neck of the guitar.
- Image analysis.

The Problem

- Sheet music only shows the note played, not where to play it.
- There are up to 5 different possible places to play any note on the guitar's fretboard.
- We need to pick the right note to be played from this set.
- So at the least we must pick the closest note to where we think the hand is on the guitar's neck.
- The accuracy of this can be improved in other ways as some notes can be played where the and is not and we could get more info than just where the hand is.
- E.g. Openly played strings and the shape of the hand while playing.

Implementation

- Web App
- API does audio analysis for our sheet music
- Sheet music is then converted to guitar tabs using our neural network
- With logic based on the info given by the neural network and what is possible to play.

Neural networks

- A neural net will be developed to handle the image classifying problem.

- It will be train on a dataset made up of images taken by us and possibly images found online.
- The programming language we plan to use is python and the main packages we plan to use are Keras and Tensorflow.

API

- Doremir
- music.mp3 to sheet.avg or music.xml
- Monophonic or Polyphonic
- Chord analysis

Breakdown

- Eoin will cover most of the neural network related work
- Andrew will cover API management and link the pieces together.
- Both of us will work on retrieving the data set.