Project proposal:

Application that translates music sounds to a music sheet

Course: Students:

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The music transcription can sometimes be a lot of work which requires a lot of time. To perserve time, the idea is to develop an application that will translate any kind of music sound to the music sheet. What is important fact about this application is that it would be possible to be used by musical professionals as well as amateurs.

Firstly, the sounds will be captured using the microphone. The users will have to provide the desired sound with which the application will work. Before the translation of the sound it is important to understand this sound by looking at it's amplitude and frequency. An audio signal's energy varies over time, so the short-term energy analysis can be used to provide a description for capturing these amplitude changes. With short-term energy it will be determined whether there is sound or no sound, based on the magnitude of the signal amplitude. However, it is not enough to use only short-term energy analysis but it is important to look at the zero crossing rate of the sound signal to avoid any potential errors. For the melody part of the sound, the analysis will be done using the spectrogram and Fourier transform.

After the pre-processing part, with the use of neural networks the model can be trained to classify music notes from the sound. With the use of this model, the user after providing the application with the sound will be able to obtain a music sheet for that sound.

October, 2023.