**Department of Electrical Engineering**

**IIT JODHPUR**

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| **B.Tech Project – Mid Term Report** | | | | | | | | |
| **Title of the Project** | | | MIR analysis of FMA dataset, and genre classification | | | | | |
| **Name of the Supervisor/s** | | | Dr Sandeep Kumar Yadav | | | | | |
| **Name of the Student/s** | | | 1.Ujjwala Anantheswaran  2. Srishti Chauhan | | | | | |
| **Abstract**:(Approximately 200 words)  Musical genres are categorical labels created by humans to characterize pieces of music. A musical genre is characterized by the common characteristics shared by its members. These characteristics typically are related to the instrumentation, rhythmic structure, and harmonic content of the music. Genre hierarchies are commonly used to structure the large collections of music available on the Web. Automatic musical genre classification is very useful for music indexing and retrieval and would reduce the manual labour involved. Human classification can be done with nearly 70 percent accuracy, as the classification can be very subjective. In this project, we have worked on the Free Music Archive (FMA) dataset that categorizes 106,574 music files into 163 genres, with 16 basic (top-level) genres that we will classify our music into. Based on a study of existing literature on this classification problem, we find that the features most relevant to genre classification, are MFCC (Mel-frequency cepstral coefficients), Zero-crossing rate, and Spectral centroid. Using this feature, we create a subset of our dataset, and train it using various multi-class classifiers such as SVM with different kernels, Neural Networks, Decision tree, and Random Forest classifier. | | | | | | | | |
| **TIMELINE** | | | | | | | | |
| **S.No.** | **Activity Description** | **Slot-1** | | **Slot-2** | **Slot-3** | **Slot-4** | **Slot-5** | **Slot-6** |
| **1** | Obtaining dataset, preprocessing data | Preprocess data, extract features | |  |  |  |  |  |
| **2** | Applying various classification algorithms |  | | SVM (Kernels: Linear, Poly, RBF, Gaussian) | Neural network | Decision Trees | Random Forest |  |
| **3** | Study results, compare efficiencies of classifiers against one another |  | |  |  |  |  | Plot decision boundary, confusion matrix |

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| **Signature of Supervisor/s:** | **Signature of Student/s:** |

1. 1.
2. 2.

**UG CONVENER**