

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**"Jnana Sangama" Belagavi – 590 010**



**PROJECT REPORT ON  
"OVERLAPPING ACOUSTIC EVENT  
CLASSIFICATION"**

**Submitted in partial fulfillment of the requirements for the award of degree**

**BACHELOR OF ENGINEERING  
IN  
ELECTRONICS & COMMUNICATION ENGINEERING  
Submitted By**

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**DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

**ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY**

**MOODBIDRI – 574 225.**

**2018-2019**

# ALVA'S INSTITUTE OF ENGINEERING & TECHNOLOGY

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(Affiliated to VTU, BELAGAVI)

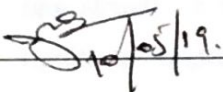
## DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

### CERTIFICATE

Certified that the project work entitled "OVERLAPPING ACOUSTIC EVENT CLASSIFICATION" is a bona fide work carried out by

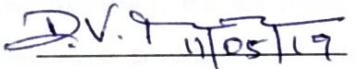
CHAITHANYA S P	4AL15EC015
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in partial fulfillment for the award of BACHELOR OF ENGINEERING in ELECTRONICS & COMMUNICATION ENGINEERING of the VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI during the year 2018–2019. It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library. The project report has been approved as it satisfies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.



Signature of the Guide

Dr. Shankar B B



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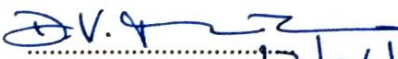

### EXTERNAL VIVA

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Signature with date

  
13/06/19  
  
15/6/19

## ABSTRACT

Acoustic is a type of sound, it is important to know not only speech and music, which has been researched but also common sound in day to day environment. Each time sound signal contain a combination of information as a mixture of noise, clean sound and noise like characteristics with flat spectrum have extract audio event from audio signals different acoustic events are selected from sound scene database of Real Word Computing Partnership (RWCP) group. The recognition performance of acoustic events using proposed features and Mel-Frequency Cepstral Coefficients (MFCCs) with clean and noisy test samples are compared. The proposed feature show significantly improved recognition accuracy over MFCCs in noisy have propose an approach MFCC feature extraction technique variable recordings, spectral, cepstral, energy and voicing-related audio features are extracted.

Classification of the overlapping sound events, the Support Vector Machine (SVM) to feature extraction using the statistics that mainly contains Mel spectra where the most relevant feature frame based classification using SVM is a algorithm that analyses the data for classification and recognition it is a important machine learning technique. A sliding window approach is used to obtain statistical functional of the low-level features on short segments. SVM are used for classification of these short segments and majority voting scheme is employed to get a decision for the whole recording for the classification process. The SVM method is a suitable and relatively precise algorithm for the classification of phone ring already on the sampling frequency, but the sound pressure of the background has a significant impact on classification accuracy. The total average classification accuracy reached in train classes as 77% and also in case of tested samples the accuracy is reached as 95% for total for train as 30 classes test as 20 classes have observed from the experimental results that the best separating feature the MFCC features for highly overlapped data distributions.