SPEECH EMOTION RECOGNITION
USING MACHINE LEARNING

A PROJECT REPORT

SUBMITTED BY,

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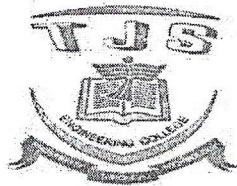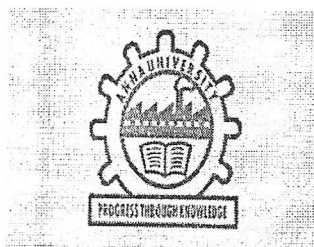
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In partial fulfillment for the award of the degree of

" BACHELOR OF ENGINEERING"

In

Computer Science And Engineering

T.J.S.ENGINEERING COLLEGE,PERUVOYAL

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BONAFIDE CERTIFICATE

Certificate that this project report **"SPEECH EMOTION RECOGNITION"**

Is the bonafide work of the following students.

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INTERNAL EXAMINAR   EXTERNAL EXAMINAR

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ABSTRACT :

In Human Computer Interaction (HCI) area speech emotion recognition is one of the popular topic in the world. Many researchers are engaged in developing systems to recognize different emotions from human speech.
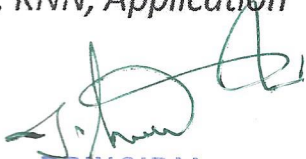
This is done to make HCI and human interface more effective and develop systems like humans. In this paper we have stated the basics of speech emotion recognition system and reviewed different feature extraction and classification technique for the system.

Features are classified as Elicited features, Prosodic features and Spectral features. Different classifying techniques are used to classify different emotions from human speech like Hidden Markov Model (HMM), Gaussian Mixtures Model (GMM), Support Vector Machine (SVM), Artificial Neural Network (ANN), K-nearest neighbor (KNN).

Performance of classifiers are also discussed shortly. Different applications where speech emotion recognition systems are used are also discussed in last section of the paper.

Keywords— Emotion, Speech, Emotional Speech database, Elicited featues, HMM, GMM, SVM, ANN, KNN, Application

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CE8151   PROBLEM SOLVING AND PYTHON PROGRAMMING   **L T P C**
3 0 0 3

OBJECTIVES:
- To know the basics of algorithmic problem solving
- To read and write simple Python programs.
- To develop Python programs with conditionals and loops.
- To define Python functions and call them.
- To use Python data structures -- lists, tuples, dictionaries.
- To do input/output with files in Python.

UNIT I   ALGORITHMIC PROBLEM SOLVING   9

Algorithms, building blocks of algorithms (statements, state, control flow, functions), notation (pseudo code, flow chart, programming language), algorithmic problem solving, simple strategies for developing algorithms (iteration, recursion). Illustrative problems: find minimum in a list, insert a card in a list of sorted cards, guess an integer number in a range, Towers of Hanoi.

UNIT II   DATA, EXPRESSIONS, STATEMENTS   9

Python interpreter and interactive mode; values and types: int, float, boolean, string, and list; variables, expressions, statements, tuple assignment, precedence of operators, comments; modules and functions, function definition and use, flow of execution, parameters and arguments; Illustrative programs: exchange the values of two variables, circulate the values of n variables, distance between two points.

UNIT III   CONTROL FLOW, FUNCTIONS   9

Conditionals: Boolean values and operators, conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: state, while, for, break, continue, pass; Fruitful functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Lists as arrays. Illustrative programs: square root, gcd, exponentiation, sum an array of numbers, linear search, binary search.

UNIT IV   LISTS, TUPLES, DICTIONARIES   9

Lists: list operations, list slices, list methods, list loop, mutability, aliasing, cloning lists, list parameters; Tuples: tuple assignment, tuple as return value; Dictionaries: operations and methods; advanced list processing - list comprehension; Illustrative programs: selection sort, insertion sort, mergesort, histogram.

UNIT V   FILES, MODULES, PACKAGES   9

Files and exception: text files, reading and writing files, format operator; command line arguments, errors and exceptions, handling exceptions, modules, packages; Illustrative programs: word count, copy file.

TOTAL: 45 PERIODS

OUTCOMES:

Upon completion of the course, students will be able to
- Develop algorithmic solutions to simple computational problems
- Read, write, execute by hand simple Python programs.
- Structure simple Python programs for solving problems.
- Decompose a Python program into functions.
- Represent compound data using Python lists, tuples, dictionaries.
- Read and write data from/to files in Python Programs.
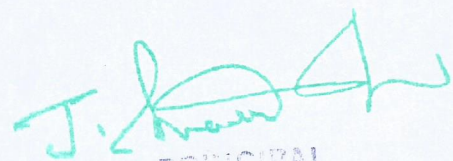
TEXT BOOKS:
1. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist", 2nd edition, Updated for Python 3, Shroff/O'Reilly Publishers, 2016
2. Guido van Rossum and Fred L. Drake Jr, ¯An Introduction to Python – Revised and updated for Python 3.2, Network Theory Ltd., 2011.

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2. Robert Sedgewick, Kevin Wayne, Robert Dondero, ¯Introduction to Programming in Python: An Inter-disciplinary Approach, Pearson India Education Services Pvt. Ltd., 2016.
3. Timothy A. Budd, ¯Exploring Python‖, Mc-Graw Hill Education (India) Private Ltd.,, 2015.
4. Kenneth A. Lambert, ¯Fundamentals of Python: First Programs‖, CENGAGE Learning, 2012.
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6. Paul Gries, Jennifer Campbell and Jason Montojo, ¯Practical Programming: An Introduction to Computer Science using Python 3‖, Second edition, Pragmatic Programmers, LLC, 2013.