**Audio Summarization**

**By**

**Arghajeet Christopher Gomes [ 33 ]**

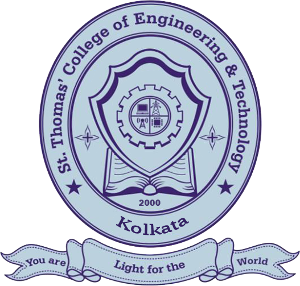
**Shyam Sundar Jha [ 39 ]**

**Sumedha Samanta [ 62 ]**

**Tamal Tripathy [ 70 ]**

**Under the esteemed guidance of**

**Ghazaala Yasmin**



A project synopsis submitted for the partial fulfillment of

Bachelor of Technology in the

**Department of Computer Science and Engineering**

**St. Thomas’ College of Engineering and Technology**

**Affiliated to**

**Maulana Abul Kalam Azad University of Technology, West Bengal**

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**Department of Computer Science and Engineering**

**Declaration**

We declare that this written submission represents our ideas in our own words and we have adequately cited and referenced the original sources. We also declare that we have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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**Arghajeet Shyam Sumedha Tamal**

**Christopher Sundar Samanta Tripathy**

**Gomes Jha**

**[ Roll No.: 33 ] [ Roll No.: 39 ] [ Roll No.: 62 ] [ Roll No.: 70 ]**

**St. Thomas’ College of Engineering and Technology**

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2.1. Introduction <maximum three pages>

* + 1. Problem Statement
    2. Objective
    3. Literature Survey
    4. Brief Discussion on Problem
    5. Organization/ Planning
  1. Concepts and problem analysis <maximum five pages>
  2. Conclusion

1. Reference / Bibliography
2. **Preamble**
   1. **Vision and Mission**

Vision of the Institute:

* To evolve as an industry oriented, research-based Institution for creative solutions in various engineering domains, with an ultimate objective of meeting technological challenges faced by the Nation and the Society.

Mission of the Institute:

* To enhance the quality of engineering education and delivery through accessible, comprehensive and research-oriented teaching-learning-assessment processes in the state-of-art environment.
* To create opportunities for students and faculty members to acquire professional knowledge and develop managerial, entrepreneurial and social attitudes with highly ethical and moral values.
* To satisfy the ever-changing needs of the nation with respect to evolution and absorption of sustainable and environment friendly technologies for effective creation of knowledge-based society in the global era.
  1. **Program Outcome (PO) and Program Specific Outcome (PSO)**

POs:

* PO1: **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and engineering specialization to the solution of engineering problems.
* PO2: **Problem Analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering science.
* PO3: **Design & Development of Solutions:** Design solutions for complex engineering problems and design system components, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
* PO4: **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
* PO5: **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
* PO6: **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
* PO7: **Environment and Sustainability:** Understand the impact of professional engineering solutions in social and environmental context and demonstrate the knowledge of, and need for sustainable development.
* PO8: **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norm of engineering practice.
* PO9: **Individual and Team Work:** Function effectively as an individual and as a member or leader in diverse teams and in multi-disciplinary settings.
* PO10: **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
* PO11: **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team to manage projects and in multi-disciplinary environments.
* PO12: **Life-long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PSOs of Computer Science and Engineering:

* PSO1: **Programming skills:** Apply fundamental knowledge and programming aptitude to identify, design and solve real life problems.
* PSO2: **Professional skills:** Students shall understand, analyze and develop software solutions to meet the requirements of industry and society.
* PSO3: **Competency:** Students will be competent for competitive examinations for employment, higher studies and research.
  1. **PO and PSO mapping with justification**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PO 1 | PO  2 | PO  3 | PO  4 | PO  5 | PO  6 | PO  7 | PO  8 | PO  9 | PO  10 | PO  11 | PO  12 | PSO  1 | PSO  2 | PSO  3 |
| **Audio Summarization** | 2 | 3 | 2 | 2 | 3 | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

* **PO1-** Throughout this project we are applying the concepts of Physics and engineering in terms of data analysis and advanced machine learning algorithms.
* **PO2**- In this project we are analysing and solving the problem of summarization of audio.
* **PO3**- A real world in-demand problem has been taken up and the solution for the same Is being developed.
* **PO4**- In this project we are using research-based knowledge and analysis of audio files to develop a viable solution.
* **PO5**- In this project we are using advanced algorithms of Machine Learning and analysis in Python.
* **PO8**- Professional ethics are being followed as following the ethical principles and committing to professional ethics are upheld as sacrosanct.
* **PO9**- This is a team project and we are contributing to it individually as well as collectively.
* **PO10-** As a team we always discuss and put forward each other’s opinions and advance accordingly.
* **PO11**- The knowledge and understanding of management has been applied in our work.
* **PO12**- This project gives us the ability to engage ourselves in independent and lifelong learning and is keeping us updated with the latest technologies.
* **PS01**- Fundamental knowledge and programming aptitude has been applied at every step.
* **PSO2**- Requirements have been analysed and prototype is being developed to meet industry standards.
* **PSO3**- This project gives us the ability to engage ourselves in independent and lifelong learning and is keeping us updated with the latest technologies and thus, will definitely help us improve ourselves in the industry.

* 1. **Introduction**
     1. **Problem Statement**

Define an unsupervised learning model that can summarize an audio file. Using the model, define a module that can summarize one such audio file automatically.

* + 1. **Objective**

Our main objective is to understand and extract the main contents of an audio file which is of a considerable length and summarize it in a way that the generated audio file contains the core sentiments and information of the original audio file. This concept can be applied to a wide variety of applications which includes but is not limited to news summarization, meeting summarization and podcast summarization.

The motivation to pursue such a concept is to help people get a gist of the vast content while enabling them to save time and conserve the limited storage resources.

* + 1. **Literature Survey**

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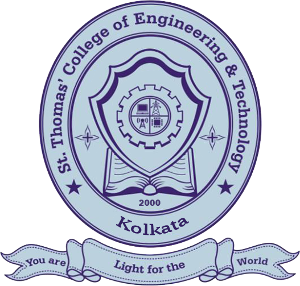
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**<Signature> <Signature> …**

**Name of student Name of student**

**Roll No.: Roll No.:**

**Department of Computer Science and Engineering**

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1. Pre-amble <maximum three pages>

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* **Note :**

1. **The number of pages in the Synopsis must be at least fifteen**
2. **Pre-amble page number must start from (I/i) then start Page number from Introduction as (1, 2, 3 …). Footer must contain page number. Header is not required in the main content.**
3. **The content should be properly documented as follows**

* Properly Paragraphed and justified
* Article Heading: Times New Roman 20 pt (Bold)
* Main Heading: Times New Roman 16 pt ( Bold )
* Sub Heading: Times New Roman 14 pt ( Bold )
* Running Text: Times New Roman 11 pt ( Justified )
* Paragraph Spacing: 1.5 lines
* Table and Figure Caption: Times New Roman l0 pt
* Paper: A4 size

1. **All the figures and tables must be numbered and also have captions. All these must be cited in the text.**
2. **Report (three copies) should be spiral bound in time of final submission of the project**
3. **Sample reference format and sample citation are as follows:**

* Number all the references.
* Use a chronological bibliography.
* Each listed reference in the bibliography must be cited in the text of the report.
* For a book give the name(s) of author(s), title of book, edition, chapter number, and page numbers, publisher, location and year of publication. Example:

[25] Jones, C.D., A.B. Smith, and E.F. Roberts, Efficient Real-Time Fine Grained Concurrency, 2nd Ed., Ch. 3, pp. 145-7, Tata McGraw-Hill, New Delhi, 1994.

* For a journal/conference paper, give the name(s) of authors, title of paper, name of journal/ conference, volume and issue number (for journal), page numbers, and month and year of publication. Example:

[23] Prasad, A.B., Kumar, C.D., Jones, E.F., and Frost, P.: “Cable Television Broadband Architectures”, IEEE Comm. Magazine, vol. 39, pp. 134-141, June 1991.

* For a World Wide Web page, give the author or company's name and the URL.

**Examples of in-text citations:**

"...end of the line for my research [13]."

"This theory was first put forward in 1987 [1]."

"Scholtz [2] has argued that..."

"Several recent studies [3, 4, 15, 16] have suggested that...."

"Several recent studies [3-8, 10, 16-18, 20] have suggested that...."

"For example, see [7]."

*<cite as sorted sequence>*