design document for

AVGET: An Audio Visual Information Access System

submitted to:

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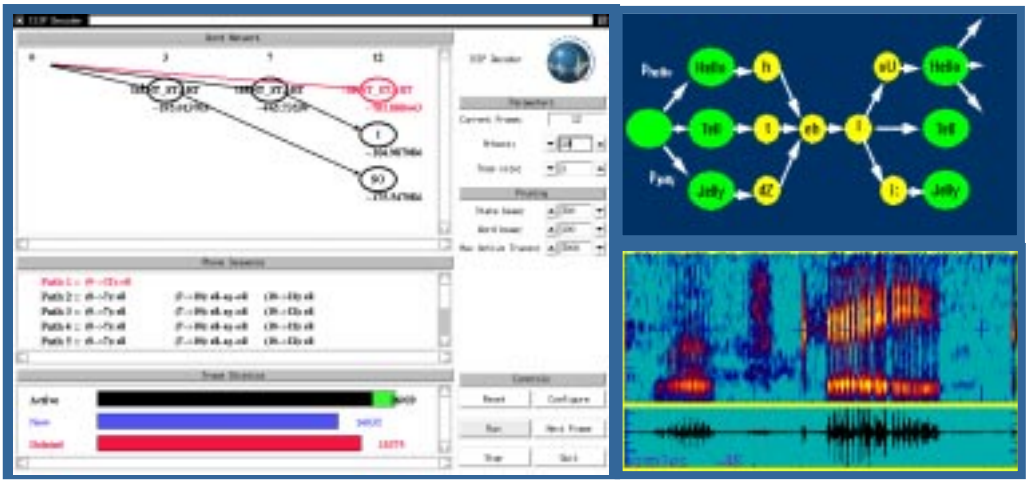
Project related picture goes here



submitted by:

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TABLE OF CONTENTS

12. pt. Bold Helvetica uppercase

12 pt. Times font

EXECUTIVE SUMMARY

The executive summary must be exactly one page long. It should be composed of four paragraphs. The first paragraph contains an overview of the problem (not the approach).

The second paragraph contains an overview of the design constraints. The goal of this paragraph is to make sure the reader understands the key technical challenges.

The third paragraph contains an overview of the approach you are taking to solve the problem. How do you plan to meet your key design constraints? The second and third paragraphs are the longest.

The last paragraph contains an overview of the novelty of your design. This is a fairly short paragraph that summarizes innovation in your project. What other things can be done to improve your design; what will be the impact of success, etc. This paragraph should be about four sentences.

one blank line between paragraphs

running heads as shown (8 pt. Helvetica)

The Exec Summary is exactly one page using 1” margins on all sides.

major headings are 12 pt. Helvetica Bold with one blank after the heading

Document starts at page 1

1. PROBLEM

In this section, you will define the problem you are addressing, explain its significance, and discuss the impact of your solution (not how you are going to solve the problem, but what will happen if you solve the problem). Start with a general overview, background, etc., and then get progressively more detailed. This section should be one to two pages long.

All paragraphs in the body of this document use a 12 pt. Times font, single-spaced. One blank line between paragraphs is required.

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2. OBJECTIVES

The objectives section will consist of an introductory paragraph, followed by a list of the constraints, followed by a one paragraph of text closing this intro. The format for each design constraint should be as shown below (number, tab spacing, bold summary, semi-colon, one sentence explanation). In this section, you will list 10 major design constraints:

1. **Performance**: We will achieve a signal-to-noise ration of 30 dB or greater, and demonstrate that this exceeds performance of existing technology.

2. **Performance**: List another performance related specification, or something that impacts the overall project goal.

3. **Performance**: List another performance related specification, or something that impacts the overall project goal.

4. **Performance**: List another performance related specification, or something that impacts the overall project goal.

5. **Performance**: List another performance related specification, or something that impacts the overall project goal.

6. **Power**: Our system will consume no more than 0.1 Watts during normal operating conditions. The system will operate over input voltages ranging from 100 to 250 VAC.

7. **Acoustic Noise Emission**: The system will emit acoustic noise no greater than 30 dBA under normal operating conditions.

8. **Electromagnetic Compatibility**: The system will conform to FCC emission limits for Class B digital devices.

9. **Physical Packaging**: Our design will be packaged in a molded plastic container measuring 3” high, 4” wide, and 5” deep, and contain on fan (specify) to vent heat.

10. **Cost**: The component costs for our design will not exceed $53.25; the expected market price for the unit is $79.99; the profit margin is 33%.

In subsequent sub-sections of this document, you will explain how these constraints are relevant to the problem described in Section I.

2.1. Improved SNR Through Time-Domain Processing

After the design constraints are listed, you will have several sections (typically about 5 sections) in which you explain these constraints. Since some constraints are interrelated, it makes sense to explain them in groups.

2.2. Delivering High Performance At Low Power

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3. APPROACH

In this section, you explain your approach in great detail. This will be the single largest section in the document, often 20 or 30 pages long. It will contain a comprehensive explanation of your design, including theory and practice. It should be somewhat self-contained so that a student with a background similar to yours can understand it.

Figures should appear as shown below and be referenced in the text as Figure 1. Similarly, tables should be included in the text and be referenced as Table 1. All text in figures and tables, including the captions, use a 10 pt. Helvetica font.

Equations in your document should appear as shown below with the equation number in parentheses to the right of the equation. Use a medium-sized font — one that matches the rest of the document.

Description	Performance
xxyy xx	3.1%
zzz yyy zzz	2.6%
hxhxh hxhxh	8.3%
fff ggg	11.7%

Table 1. This is an example of a table heading.

For example, suppose we want to state an equation that describes how to compute an integral. This equation might look something like this:

$$x(t) = \int_0^\infty y(t)\partial t \ . \qquad (1)$$

Equations are offset from the adjoining text by a half-line spacing. Equations are followed by appropriate punctuation, since they are treated as part of a sentence.

I also expect the Approach section of have detailed schematics, and explanations of the schematics. Use what you have learned in circuit theory!

References should be cited in the text like this [2], or perhaps like this [3,4], or even like this [6-8]. Equations should be cited like this. As you can see, from Equation 1, we are disclosing something really profound. Tables and figures are cited similar (Figure 1 and Table 1).

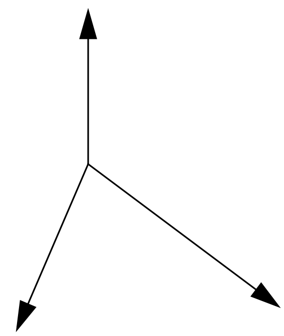

Figure 1. This is an example of a figure caption. All text should be in a 10 pt. Helvetica font.

4. TEST SPECIFICATION

This section will have two subsections — one which deals with the simulations and one which deals with the hardware.

5. TEST CERTIFICATION

This section will also have two subsections that deal with your simulation and hardware. Remember, the point of these two sections is to convince the reader that you met your design constraints.

6. SUMMARY AND FUTURE WORK

This section will be about one page long and review what was accomplished (what worked? what didn't work?), and talk about future extensions of the project (what things could be done better? what things needed to be done differently to overcome problems).

7. ACKNOWLEDGMENTS

We wish to acknowledge John Doe of ABC Corporation, Dr. John Smith of the National Institute for Cool Things, and Dr. I.M. Smart of XYZ for their continued support and feedback regarding this project. We also acknowledge the National Science Foundation for its funding of this project, which enables many useful on-line documents to be developed. Mr. Doe's interactions have helped us add features to the system, some of which make this system very unique compared to other systems. Say a few more good things.

8. REFERENCES

(References should follow the format specification mentioned on the web site precisely. You are expected to have at least 20 published scientific references. URLs, technical manuals, newspaper articles, etc., don't count but can be included. Your overall reference list should be close to 50 items.)

[1] A. Ganapathiraju, N. Deshmukh, Y. Wu, and J. Picone, "An Internet-Based Public Domain Speech-to-Text Toolkit," *Quarterly Status Report for the Department of Defense*, Institute for Signal and Information Processing, Mississippi State University, August 1999.

[2] A. Ganapathiraju, N. Deshmukh, J. Hamaker, and J. Picone, "An Internet-Based Public Domain Speech-to-Text Toolkit," *Quarterly Status Report for the Department of Defense*, Institute for Signal and Information Processing, Mississippi State University, May 1999.

[3] A. Ganapathiraju, N. Deshmukh, V. Mantha, J. Hamaker, and J. Picone, "Towards an Extensible Public Domain Speech Recognition System," *Proceedings of the Hub-5 Conversational Speech Recognition Workshop*, Linthicum Heights, Maryland, USA, September 1998.

[4] J. Picone, et. al., "ISIP Software Documentation," *http://www.isip.msstate.edu/projects/speech/education/tutorials/isip_env/index.html*, Institute for Signal and Information Processing, Mississippi State University, July 1999.

[5] J. Picone, "Managing Software Complexity in Signal Processing Research," *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. III-41-III-44, Minneapolis, Minnesota, USA, April 1993.

[6] J. Garofolo and J. Fiscus, "Speech Header Resources (SPHERE) version 2.6", *http://www.itl.nist.gov/div894/894.01/software.htm*, National Institute for Standards and Technology, Gaithersburg, Maryland, USA, June 1996.

[7] G. Strong, "DARPA Communicator Program," *http://www.darpa.mil/ito/research/com/index.html*, Defense Advanced Research Projects Agency, USA, 1998.

[8] J. Markel and A. H. Gray, Jr., *Linear Prediction of Speech*, Springer-Verlag, New York, New York, USA, 1980.