

**ENPRO 350 – FALL 2006
BROWSABLE AUDIO FOR INTERACTIVE
LANGUAGE LEARNING ON MOBILE DEVICES**

“AudioDoc”

PROJECT PLAN

MISSION

The mission of AudioDoc is to usher in a new technology called “browsable audio” to people all around the world, which they can use to learn a new language efficiently and cost-effectively. We hope to develop the hardware and software technologies, as well as strategic business partnerships and operations, that will make AudioDoc a unique and lucrative business venture.

OBJECTIVES

The objectives of this ENPRO are broken up into two major categories:

Technology

- Research technologies and develop a functional prototype of AudioDoc, suitable for proof-of-concept demonstrations on a laptop computer and handheld device
- Create an operational/project plan for the future development of the actual product

Business

- To determine target market after in depth research of current market
- To consider legal issues associated with this technology such as copyright protection
- To demonstrate that browsable audio is an effective and attractive language learning tool.
- To explore possible partnerships and methods of distribution to consumers
- To complete a business plan in collaboration with the Technology Team

BACKGROUND

The goal of this project is to develop a portable language learning solution, called AudioDoc, for distribution to language schools, teachers and individuals. The experience will be similar to conversing with a native speaker with the ability to stop and ask questions as needed.

This ENPRO is sponsored by the Ed Kaplan Entrepreneurial Studies Program and many members of the team are Kaplan Scholars. This project was brought to IIT by Attila Kondacs, who earned his Ph.D. in Artificial Intelligence from MIT and who is

the entrepreneur behind AudioDoc. He has developed advanced software technologies for aligning written text with spoken audio, opening up a new world of communication technologies where users can navigate an interactive audio stream just as they would a book. Though the uses of this technology are far-reaching, the lucrative market of language learning will be pursued in this project.

The utility of learning a second language has significant implications in the modern world - mainly in response to globalization. The current market for people on the go looking to learn a foreign language is centred mainly in non-English speaking countries. It is estimated that 1.3 billion people are currently learning English world wide. The major markets include the USA ESL (English as Second Language) market (around 27 million) and the Japanese ESL market.

A key feature missing from the current language learning market is portability. Many people seeking to learn a language are forced to settle for a classroom setting, which is inefficient and takes a significant amount of time from their busy life style. Current portable products have limited capabilities in that they are looped and only give simple phrases followed by definitions. However, as technology has improved, very powerful hand-held devices have emerged. There is a push to put more applications on these devices, such as palm pilots or smartphones, to increase the efficiency of many daily tasks.

Another problem with the current market for language learning is that it is highly fragmented. There are many language learning schools, individual tutors, conversation groups and online services that deliver content to laptops. CleverLearn, a German company is scheduled to release a product similar to AudioDoc using movies on a DVD instead of audio books. However, audio books have a niche market amongst the more serious language learners as the vocabulary and grammar is usually more demanding.

Our technology enables one to learn a language by listening to a foreign language audio book on a portable device. The product enables one to pause the audio book, step back word-by-word to a word he/she did not understand and look up the dictionary definition and any available grammar explanation of the expression. The user can learn the language at their own pace, anywhere. Using this device, they can learn vocabulary, words, proper grammar/syntax, pronunciation and improve listening skills.

There is currently a US patent application for the use of database time aligned with multimedia for language learning. However, this patent is unlikely to be granted as parts of it have prior art.

Dr. Kondacs has supplied the team with a draft business plan for AudioDocs. Though much of the business plan is well-researched, several sections will need substantial improvement, including the financials, marketing strategy, distribution, and legal issues. Additionally, the software for this project will need to be greatly improved upon, as its current state is that of a simple demonstration.

Dr. Kondacs' draft business plan also outlines many of the key areas that need to be explored to develop a complete product. The plan has some useful background information for our team on the product, market, competitors, distribution channel and operational plan. Currently we have some specifications for the hardware and software requirements of such a device. The hardware should be portable, capable of storing at least 60 minutes of audio, provide quick access to stored memory and implement functions such as BACKWARD, FORWARD, PLAY, etc. The software

aspects of this device require a text to speech aligner, the ability to link to a dictionary and an easily programmable interface.

Within the current, severely underserved market, a product that is cost effective, portable and has a user friendly, interactive interface will greatly benefit any individual looking to learn a language.

EXPECTED RESULTS

The expected results of the IPRO team can be broken into two sections:

Technology Team

- Be knowledgeable about current technologies in the language learning field, as well as other language/speech-related technologies
- Know hardware and software specifications for multiple device platforms, keeping in mind the inevitable advances in technology over the years
- Have the project and operational plans for the development of AudioDoc in the future
- Posses a functional prototype of AudioDoc as a proof-of-concept. The prototype may be on a portable or non-portable device.

Business

- Derive a clear definition of the target market for our product and possible competitors
- Establish solutions to any issues that may arise from the use of intellectual property and determine the DRM issues involved
- Submit proof (surveys, studies, etc) that validate browsable audio as a lucrative method for language learning
- Explore and facilitate partnerships with other companies for distribution of product, both in and outside the market
- Incorporate the aforementioned aspects into a professional and complete business plan

RESEARCH METHODOLOGY

The two broad objectives for this project are to write a quality, convincing business plan for AudioDoc, and also to develop a working “proof-of-concept” prototype of the handheld device. Our general approach to work through these tasks is to split into two sub-teams, the Business Team and Technology Team. While each team will be responsible for their respective portions of work, there will be much communication between all members on their respective progress and work.

Technology Team

The Technology Team is faced with providing the core software and hardware technologies for AudioDoc. We will be breaking down the work into four phases:

Phase I: Research

This will be a stage of broad knowledge-gathering that will familiarize team members with possible hardware and software implementations, as well as competing products and future operational expenses, such as actual product development costs and logistics.

Team members will then gather their research findings and together answer key questions to their plans for Phase II, the development of a prototype: what programming language will we use, what software packages can be of use for software development, what portable device should be used for the prototype?

Phase II: Prototype Development

The development of a software and hardware prototype will be essential in “selling” the idea of AudioDoc to investors, as our technology is new and unfamiliar to the public.

Having decided on a prototype portable device, the team will begin taking steps to implement the technology behind AudioDoc. Initial programming will be done on desktop computers, and will then be “ported” to the handheld device. Some elements of the programming may be outsourced, as decided by Dr. Kondacs.

Phase III: Sub-Team Finalization

During this phase, one member of the Technology Team will join the Business Team to provide more solid technical understandings to the business plan. At the same time, the rest of the Technology Team will work on fine-tuning the prototype, creating a document for continuing work next semester, and exploring other possible options for expanding AudioDoc's technology into other markets in the future.

Phase IV: IPRO Day Deliverables

At this point, the two sub-teams will combine to work collectively on IPRO Day Deliverables, including posters and presentation.

Business Team

The Business Team will focus on exploring the business aspects of this project. We have divided our tasks into three phases.

Phase I: Research

During this phase, the team will gather background information about the current language learning market. More specifically, we will study methods for language learning and their effectiveness. We will also research possible target markets. Additionally, we will look at competitors from the business perspective and

consider legal issues associated with our product. Finally, we will research possible partners for distribution and sales.

Phase II: Fieldwork and Business Plan Completion

In this phase, after finalizing our target market, we will conduct customer surveys to determine desirable product features and feasible price points. We will construct a financial model that will include labor costs, hardware and software costs, and distribution/marketing costs. We will also develop solutions to possible legal problems that may arise in the future. Finally, we will work with a member from the Technology Team to compile all of the gathered information into the business plan.

Phase III: IPRO Day Deliverables

In this phase, we will work with the Technology Team to complete the deliverables for IPRO Day (poster and presentation). We will also make any refinements to the business plan, as needed.

Meetings

Group meetings will serve as a venue for all group members to present their ongoing work and to receive group input.

Tuesday: Full meeting (both sub-teams)

Thursday: Sub-team meetings. Team leader will send a brief report of their team's progress to all members.

PROJECT BUDGET:

Item	Quantity	Price	Total
Photocopying	500 copies	\$50	\$50
Transportation to potential sponsors/partners	-	\$100	\$100
Purchasing a competitor product for evaluation of technology and features	-	\$250	\$250
Purchasing a portable device for testing purposes	-	\$250	\$250
Conducting customer surveys and focus groups studies	-	\$100	\$100
Total		\$750	\$750

TASK SCHEDULES / MILESTONES:

		Task Name	Duration	Start	Finish	Predece:
1		<input type="checkbox"/> I PRO 350	55.21 days?	Tue 9/26/06	Tue 11/21/06	
2		<input type="checkbox"/> Technology Team	47.75 days?	Tue 9/26/06	Tue 11/14/06	
3		<input type="checkbox"/> Phase 1: Research	14.08 days?	Tue 9/26/06	Tue 10/10/06	
4		Study existing source	14.08 days?	Tue 9/26/06	Tue 10/10/06	
5		Research existing technology	14.08 days?	Tue 9/26/06	Tue 10/10/06	
6		Research mobile devices	14.08 days?	Tue 9/26/06	Tue 10/10/06	
7		Phase 2: Prototype Development	27.42 days	Tue 10/10/06	Tue 11/7/06	3
8		<input type="checkbox"/> Phase 3: Sub-Team Finalization	6.25 days?	Tue 11/7/06	Tue 11/14/06	7
9		Creating documentation	5.88 days?	Tue 11/7/06	Mon 11/13/06	
10		Other uses	6.25 days?	Tue 11/7/06	Tue 11/14/06	
11		<input type="checkbox"/> Business Team	41.65 days?	Tue 9/26/06	Tue 11/7/06	
12		<input type="checkbox"/> Phase 1: Research	14.08 days?	Tue 9/26/06	Tue 10/10/06	
13		Target markets and competition	14.08 days?	Tue 9/26/06	Tue 10/10/06	
14		Partnerships	14.08 days?	Tue 9/26/06	Tue 10/10/06	
15		Language learning methods	14.08 days?	Tue 9/26/06	Tue 10/10/06	
16		<input type="checkbox"/> Phase 2: Fieldwork and Business	20.94 days?	Tue 10/10/06	Tue 10/31/06	
17		Determine target market	10.17 days?	Tue 10/10/06	Fri 10/20/06	
18		Construct a financial model	10.77 days?	Fri 10/20/06	Tue 10/31/06	17
19		Customer surveys	10.77 days?	Fri 10/20/06	Tue 10/31/06	17
20		Write business plan	7 days	Tue 10/31/06	Tue 11/7/06	16
21		I PRO Day Deliverables	6.85 days?	Tue 11/14/06	Tue 11/21/06	2,11

INDIVIDUAL ASSIGNMENTS:

Technology Team

Dariusz Kuc

Junior in Computer Science

Study source code of existing prototype, investigate current open-source tools, development of prototype. Skills: Computer programming.

Shivam Srivastava

Senior in Computer Engineering

Team Leader

Research existing technology and similar products in the market, competition, development of prototype. Skills: Mobile device programming.

Adam Berg

Junior in Electrical Engineering
Technology Team Leader

Research mobile device possibilities and specifications for future development, explore user interface designs, development of prototype. Skills: User interfaces.

Josh Short

Senior in Business and Applied Science

Act as intermediary between the business and technical teams. Conduct the Tuesday meetings. Develop the overall 'industry picture' by gathering input from both the Technology and the Business Teams. Skills: Combination of Business and Technical background

Business Team

Syed Zaffer

Senior in Molecular Biochemistry and Biophysics

Narrowing target market, determining product features desired by customers, developing market strategies, completion of business plan. Skills: Data analysis and customer interaction.

Sayiddah McCree

Junior in Architecture

Study and evaluate current language learning methods, developing marketing strategies, completion of business plan. Skills: Design aptitude and written communication skills.

Soham Patel

Junior in Biomedical Engineering

Exploring legal issues and developing solutions, narrowing target market. Skills: Knowledge of legislation and intellectual property laws.

Ryan Feuerstein

Senior in Business Administration

Determining price point and assisting in completion of business plan. Skills: Business major with concentration in Finance

Shravani Pasupneti

Senior in Biomedical Engineering
Business Team Subgroup Leader

Considering partnerships with other businesses, both in and out of the market, developing marketing strategies, manage business team. Skills: Research and management skills.

Additonal Responsibilities

- Minute Taker: Sayiddah McCree
- Agenda Maker: Josh Short

- Time Keeper: Dariusz Kuc
- Weekly Timesheet Collector/Summarizer: Shivam Srivastava
- Master Schedule Maker: Adam Berg