Final Project Design, and Prototype
Apple Pie

Project Introduction

Research Question
How can we leverage Google's quick information retrieval capabilities to better humanize a student's digital learning experience?

The Problem
As a result of the Information Age, many people have become dependent on instant information. While it is convenient to have any information at our fingertips, studies have shown that the "Google effect" is dehumanizing the way we solve problems. According to this report, we're starting to use Google to store knowledge, instead of our brains. This is bad because our brains need information stored in long-term memory to facilitate critical thinking and problem-solving. We need unique experiences to understand and interact with the world around us. If we rely on Google to store our knowledge, we will be losing an important part of our human identity.

Proposed Solution
Instead of suppressing Google's incredible information retrieval system, what if we leveraged it to help learners build unique experiences that would still improve their critical thinking and problem-solving skills? With the help of Google Glass', we are proposing a product that students can wear as glasses which serves as a portable search engine where a student can ask a question. Instead of seeing the answer in the text, the learner is put into a virtual learning environment that will guide the learner to the answer through a personal, tailored experience using machine learning and artificial intelligence technologies. These glasses will serve as a supplemental resource for students. We believe this will give the student better opportunities to retain information found on the internet and therefore become better problem solvers in the future.

Current Research
The idea of integrating visual learning environments with cutting-edge technologies like augmented reality and virtual reality with education is actually a huge research topic. Most of the current research is leaning towards AR because real environments can help facilitate real-time interactions. Motivations for integrating AR into the classroom are improving student learning motivation and therefore improved academic achievement. More details about this can be found in this article.

There are already some products that are trying to integrate AR into the classroom:

- Dinosaur 4D+ is an application that provides a set of flashcards that users can use their phone to scan and view animated 3D dinosaurs.
- Element 4D is another application that helps students visualize chemistry in a fun, interactive way. Simply by scanning paper cubes with their phone, users can see 3D models of atoms along with details like atomic weight, chemical elements, and their reactions with other paper cubes.

Product Description

Types of People

In order to successfully launch our product, a number of people from different skill levels and backgrounds would be needed on the production team, like programmers and marketing specialists. In order to create an active and productive user experience, it is important to have a team that can both design the product and also make it marketable to the public. This would make the launch of the product successful, enabling our final product to evolve over time because technology is constantly developing.

User Interface Designer for layout,navigation and graphic design
UX Designer for interaction and prototypes
Marketing Manager for promotion
Safety Manager to protect users
Product Designers to design the technology
Programmers/ Coders

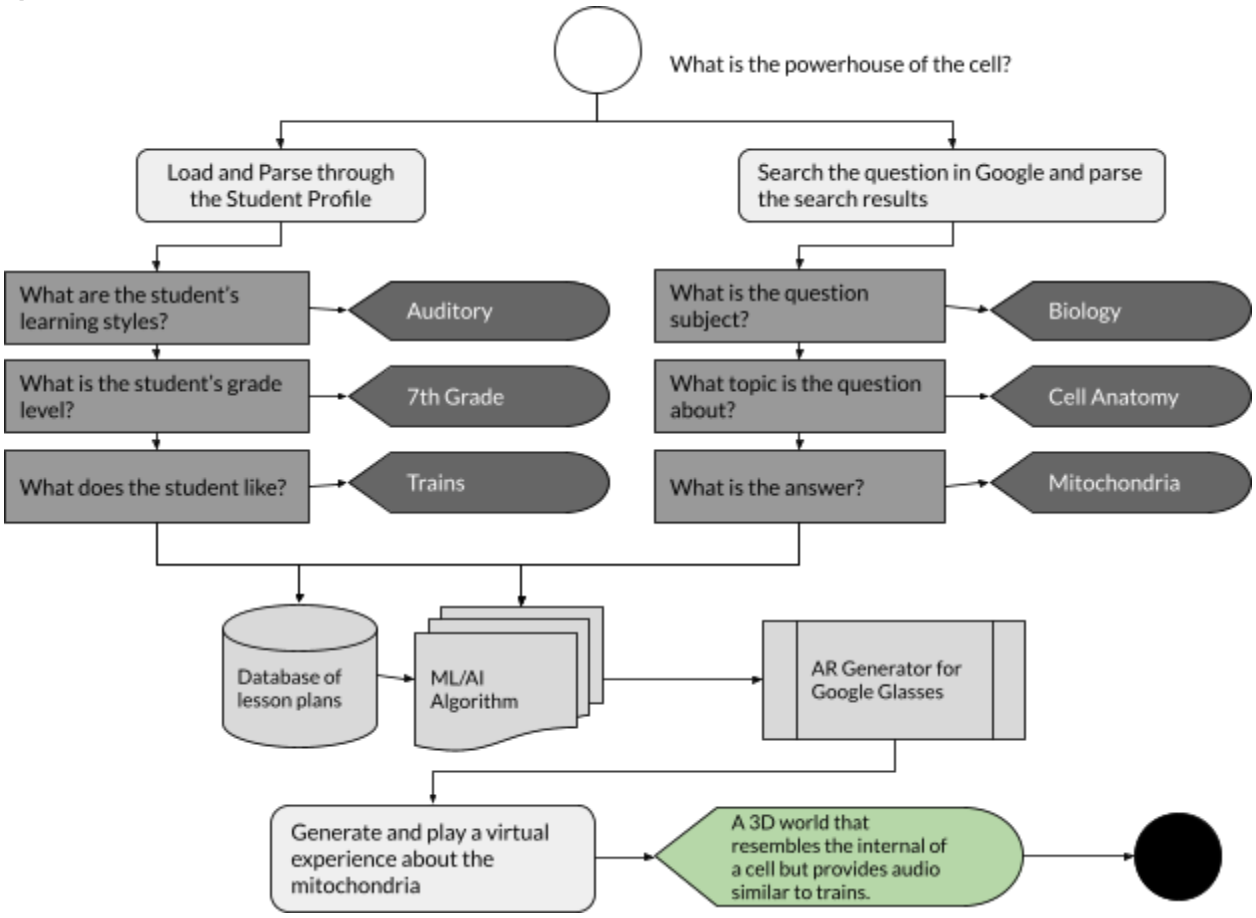
Prototype Design

Data Merge VR Glasses

Merging Technology and Humanity for the Age of Information

Product Description/ Functionality: Glasses with search engine technology that fully immerse the user in a virtual experience to help them arrive at answers on their own, instead of being provided the answers. Through this immersion, the user will be confronted with information through a call and response programmed system. If the user asks a question, the system delivers results that force the user to use their own logic and reasoning to arrive at any answer.

Question and Answer Flowchart



Product FAQs

Questions	Answers
How will the glasses help a student's learning and achieving their academic goals?	Our glasses help enhance a student's learning abilities by providing a safe, exciting, and modern environment where students feel comfortable achieving goals.
Is this practical for everyday student life?	Our glasses are extremely practical for a student's everyday life. They offer hundreds of forms of academic support like calculators, access to textbooks, the ability to communicate with other students, and access to the internet for assignments like extensive research projects. Our overall goal is to create a digitally modern product that will be the help a student needs to succeed academically.

Are the glasses solely for college students?	Our glasses were developed to cater to the academic needs of all students, from college seniors to elementary school kids. An element we included in the design and development process of our glasses was simplicity. We understand the frustration of searching endlessly for help, so we focused on making it a simple, fun experience for users.
Are there safety protocols put in place while operating vehicles?	When operating a motorized vehicle, it is recommended our users utilize our on and off feature, which shuts off our program and turns the glasses into a normal pair. When adding this feature, we prioritize our user's safety, while also complying with traffic laws regarding eyewear.
How can the data be accessed from the glasses?	Data is accessed from our glasses by including software that stores memory and data, much like the iCloud software system. Our glasses include 64 Gigabytes of storage that has the capacity to hold data ranging from multiple school assignments, projects, books to hundreds of photos and videos. We decided to enable a feature that stores data from our glasses to make our product more modern and helpful for students. The ability to save and go back to your work, we felt, was a necessary feature to add to our multifunctioning, education-centered glasses.
Where can I purchase the glasses?	Data Merge VR Glasses can be purchased directly through our website www.datamergetech.net or an electronics store near you.
What is the retail price for the glasses?	When determining a price for our state-of-the-art glasses, we took into account a student's personal budget, specifically a college student's budget. We understood that students do not have thousands to spend on educational devices, so we set our retail price at $50 per pair of glasses. With the purchase of our glasses, we will also include the charging pad and data storage software. We felt setting the price point at $50 would be an affordable price for the majority of students while also reflecting on the quality of our product.

Resource List

- Google Glass: Taking the current technology and reinventing it.
    - How can we improve upon the technology?
    - What made the glass unsuccessful? How would our technology be successful?
- Google Search
- Dreamscape and Agent Learner: Integrating virtual environment simulators.
    - How do these two tools humanize a virtual experience?
    - How safe and effective are these tools in the learning process?
- AI or Machine Learning Frameworks
    - Are there existing frameworks that can personalize lesson plans?
- Virtual Lab and Class Simulators: Researching successful teaching simulators like Labster.
- Examples of K-12 or College Curriculum
    - What topics or skills are current education systems trying to teach to students?

Pros and Cons of Data Merge VR Glasses

Benefits	Challenges
Improved Engagement Instead of reading text, students will be able to experience answers to their questions. This leads to better engagement which then leads to better information retainment. Students will also be excited to learn new material, as they now have new experiences to look forward to. **Personalized Learning Experience** The Data Merge VR glasses rely on machine learning and artificial intelligence to create personalized experiences for each question a student asks. For example, if a student asks, "How long is the Nile River?" the simulated experience that is generated will be different from another student's.	**Accessibility** Since the glasses rely on sight to experience the augmented reality experiences, those who are blind may not be properly accommodated. Currently, Google Glasses are very expensive to make (around $50). Therefore, those who do not have access to the resources to afford these glasses are not accommodated. Also, institutions may not be able to provide every student with a personal pair. **Measurement of Success** The purpose of our product is to help students retain information by providing unique experiences for them. In order to measure the success of information retention, students must not search the same thing too many times. However, what hasn't been considered is a student's personal long-term and short-term memory and how to omit that in our measurements of success. **Information Credibility** Since we are relying on Google Search's engine, we must also be aware that the search engine serves to provide sources. It doesn't actually know if the sources are credible, which then could affect the glasses' curated virtual experiences. We could avoid this by

	filtering the Google search results with only approved websites, but this is also subjective in nature. **Practicality of Product** When creating and designing this product, we incorporated practicality as one of our main focuses. We wanted our glasses to be an easy-to-use yet a high-functioning technological device that will help a student's academic success. Knowing what it's like to be a college student, we felt it was extremely necessary to make sure our product is as practical and helpful as possible.

Team Information

A statement regarding what changes you've made to your project based on the peer review feedback and why.

Based on the peer review feedback, a lot of questions were raised about the feasibility of our product. For example, Reyna asked, "How do you ensure that the quality of explanations is consistently high and that the knowledge attained will stay with the user in the long run?" which raised questions about the measurement of success. So, we decided to add a table that would talk about the pros and cons of our product. We also decided to change the design of the product from an earpiece or chip in your brain, into simply just glasses. This was because we thought that this technology is too expensive, controversial and it would be easier and safer to stick with glasses. When changing the original idea of our project, we took into account what would be more practical for a student's everyday life. Deciding on glasses over an earpiece or brain chip felt like the most realistic and safe way to create and market this product to students or the general public.

Define what your final complete proposal will look like (How are you/your group defining your proposal as "complete"?)

Our final complete proposal will include edited samples of our product and will be filled out completely. We will define our proposal as complete by ensuring we do not leave any sections empty. Ultimately, our goal for this project was to create a useful yet modern kind of technology that will humanize a virtual learning environment, to help aid in the academic success of the new generation of students.

What challenges did you face while coming up with this project idea?

A challenge we faced when developing our idea for a device was how would the data collected by the glasses be accessible to students. Another challenge was deciding how a student's personal learning styles and personality could factor into the personalized learning and Google search algorithm.