# **System Request**

## **Abstract**:

This mobile application will be able to solve physics problems by taking a picture of it on the user’s phone. This application will be similar to existing apps such as ‘Photomath’ and ‘Mathway’, but with an expansion on physics, math, chemistry problems, and with a focus on the *steps* of the solution rather than the solution itself.

The finalized product will be available on both Android and iOS platforms, as our target audience is the group of people wanting to learn in the Math, Physics and Chemistry fields.

## **Software Description**:

SnapScience is going to be a learning tool for students who are learning Math, Physics or Chemistry. Some of the features entailed in the application will include:

* Handwriting recognition using AI
* Math, Physics and Chemistry problem solutions
* Resources further explaining the concept that the problem is a part of
* Previous solution recording for easy access
* Simple & intuitive UI

Different APIs will be used to help with handwriting and problem recognition, providing solutions, creating the User Interface and directing users to resources.

With the goal of learning, the software will be able to show clear solutions and lead to a general solution for those particular problems encountered. This will be done by displaying relevant formulas to keep in mind as well as steps most usually taken to get to a solution.

## **User Requirements:**

* Phone with a built in camera
* Connection to internet
* Basic UI navigation skills
* IOS or Android OS
* A small amount of free storage

## **Technical Requirements:**

* Android and IOS platform compatibility for UI
* AI integration for problem recognition
* Algorithm development for technical solution
* Compatibility with needed APIs

## **Market Needs**:

Many people find it challenging to understand science concepts and come up with solutions on their own. A mobile app that can quickly and accurately solve science problems by scanning them can give convenient and accessible solutions.

What people need the most is a tool to help them learn the concepts behind the problems they encounter. Solving a problem for them at the present can be helpful in the short run, but the most beneficial long term solution to learning is building a stable foundation on which to establish new concepts.

## **System Benefits**:

The main benefit of using our software is being able to efficiently learn and solve problems regarding math, chemistry or physics. Some of the other benefits of our software include being able to save time, obtain more accurate results, and reference past problems. The goal is to make an app that is more of a personal educational development tool rather than a tool that does your homework. Finishing tasks at hand is important, but developing your skills up to a point of confidence is even more so.

## **Outstanding Questions**:

There were a couple of ideas that came into question when discussing the purpose of our software. Certain ideas were proposed but we also had to question whether some of those ideas would be realistic or feasible with the amount of time we are given. Once we were able to agree on a goal, there was no longer much of anything that we needed to question as far as the concept or the feasibility.

## **Comparison to Existing Software**:

There is more than a few software that offer similar promises to their users, most of them being locked behind a paywall. We are trying to make a tool that can truly be called a learning buddy, free of overwhelming UI and hidden fees. Here are some of the software in the App Store right now:

**Mathway** - Take a snapshot of any math problem you need to solve or choose any kind of calculator to input manually and solve. Also has a physics and chemistry keyboard as well.

**Photomath** - Takes a picture of your math problem and it solves it for you showing steps undertaken and generating other examples.

**Physics calculator** - Equipped with a lot of physics formulas, the user needs to choose the right one and input the known values in order to find a solution. It also points to useful articles around the provided formulas.

**Physics Toolkit** - An aggregate of physics formulas, having the user choose formulas and input known values into an equation in order to get a solution.

**Physics Master** - More heavily focused on just physics concepts rather than separate problems, physics master is a great tool to get users going. Users can also post questions to which someone will be able to answer in the format of a forum.