To meet these requirements, we have been holding weekly meetings with mentors and sponsors. In these meetings, we discuss what they are looking for in the final product, and brainstorm with him, which gives us an understanding of the areas that should be focused on in the entire project. We also conduct a lot of research in our own time and report to them during these meetings.

Some core functionalities for a minimum usable product would include:

* Portability, the researcher should be able to use the app on a smart phone, tablet or laptop computer.
* Allow user to quickly design and visually display the optimal protocol (similar to the inset figure).
* Visual display of the configured protocol, as well as user’s progress through it.
* Provide a touch interface for the user to mark samples that have been processed as they work.
* Allow the user to update the protocol based on the outcome of each test.
* Ability to save progress. The protocol takes place in three stages so the user should be able to revisit a saved protocol and continue where they left off.

Additional features that would make it truly usable:

* More refined GUI for visualizing protocols, monitoring protocol execution, and reviewing results.
* Include secure user accounts so that user accounts, including a user profile system where users can set default preferences for many parameters of their particular studies.
* System provides multi-function “lab notebook” for researchers. Users can save/edit/access many aspects of their work, e.g.:

o Protocols that they have previously designed can be saved/cloned/edited and re-used.

o Can save results from different experimental runs

* Add additional user-provided constraints and modify the protocol algorithm to accommodate the constraints.
* Provides a “group space” where lab users can post/share protocols or results with others in the lab.
* iOS version of app generated, verified, and tested.