

Public Invention Quarterly Report, 2019

-- Robert L. Read, 10/3/2019

This is the third quarterly report of Public Invention, whose first official meeting was February 15, 2019.

Organization Actions

On May 30th, 2019, our attorney, Marc Jones, officially applied for 501c3 status with the IRS, for which we are very grateful.

In this quarter Rob established a Quickbooks based accounting system. Rob will happily share the books with any board member. About \$600 of the \$5,000 initial gift have been spent on Mathematica for Math Tablet and a Wacom stylus-tablet, books and research papers for the Segmented Helix projects and electronics supplies for the Gluss Controller project.

Public Inventing

David Jeschke donated his open-source project, [Math Tablet](#), to Public Invention and agreed to become our second Invention Coach (for that project only). Rob and David have been working collaboratively to build a handwriting-enabled mathematical assistant. Much of this work has been integration with Mathematica. Rob has spent 6 hours a week on this project (or more) as promised. We have not deemed it ready for much official promotion, though we hope to reach that point in a few months. Significant progress has been made integrating Mathematica into this project.

Avinash Baskaran, a student at UT, has taken on a summer project to work on the [Gluss Controller](#) project. We have ordered a new multiplexer board, and decided to get the electrical design completely working before creating an improved 3D printed prototype. Our hope is to have a an academic paper for Avinash by the end of the summer, or at least a good "poster session". Rob and Avinash have been meeting weekly. We have spent quite a few hours trying to do SMD soldering and have not yet succeeded.

Rob has put a major effort into the "[Segmented Helix](#)" project including a browser-enabled [interactive 3D demo](#) which grew out of the 2018 Mathathon. We estimate this will produce a high-quality conference or low-level journal paper within another month. The applied math being worked out is publishably original and closely related to the Tetrobot project, which we hope to return to when write-up of this project is complete.

Shreya Bhatia has joined the "[Rapid E. coli detection](#)" project as a summer volunteer. A cheap digital microscope was purchased for this project which was being carried out by Rob as part of his volunteering with Engineers Without Borders. Much was learned on this project. In the coming fall semester this will probably not be worked on by EWB volunteers, but will be promoted to a major bio-hacking Public Invention project. We recently purchased additional microscopy and culture supplies for this project, and solicited help from an expert friend of mine at Harvard.

A single Saturday was spent with Mr. Eric Goff, who has agreed to act as Invention Coach for a nascent project, "[Number Spectra](#)".

Outreach and Communication Efforts

We have engaged Kathy Butterfield to improve our branding, design and web presence; this engagement is just starting at the time of this writing.

Stephanie and Rob produced a "short list" of six projects for us to emphasize out of our many projects. We also met with Hacker Dojo in San Francisco, and may present a "lightning" talk there when business takes him there.

A branding exercise was held which helped solidify our vision, and led to engaging Kathy. Nina has volunteered to work with Kathy on this.

The essays "[The Joy of Collaboration](#)" and "How to Graduate from [Maker into Public Inventor](#)" were published in Hackernoon, obtaining 213 and 107 views, respectively. In general we get 800 views a month (some of these are essays which are not related to Public Invention.)

Early in the quarter, the "Triad Balance" project was published as a [package](#) installable via the Node Package Manager (NPM). Last week it received one download per week. The essay "[A UX Widget for Expressing Balance](#)" was published; it has been submitted to "UX design", an appropriate publication; it had not been accepted at the time of this writing.

Status of Previous Goals

- Organize the Invention Projects into a map and other forms that make them easier to understand. *Partially accomplished by the work that Stephanie and Rob did on the "short list".*
- Identify and promote the top 3 projects (probably Rapid E. Coli detection, the Tetrobot, and the Segmented Helix project.) *Partially accomplished.*
- Apply for 501c3 status - *Done (We have official notice that our 501c3 status is underway; feedback is not expected until December.)*

- Complete the Segmented Helices Project to the level of ready-for-publication - 50% complete, or more.
- Plan a Public Invention event in conjunction with some other organization. -We had one meeting with Hacker Dojo.
- Develop a fundraising strategy - No progress.
- Improve our web presence, perhaps by hiring a web designer - Partially accomplished.
- Perform a branding exercise - Done
- Establish a “shop” for selling swag and merchandise - No progress.
- Announce the Social Tetrahedrons and Triad Balance projects. Done (but only a few positive comments and kudos)
- Recruit an Invention Coach other than Rob. - Done (thanks to David Jeschke and Eric Goff)

Goals for Coming Quarters

- Produce a 5-minute “lightning talk” and a repository of “slides” Complete the Segmented Helices Project to the level of ready-for-publication
- Build a functional hand-held “gluss controller” puppet that controls the main tetrobot to the level of an impressive demo and video
- Make significant progress understanding basic issues on the rapid E. coli detection project.
- Make sure our summer students have a fun, educational, and productive summer
- Progress Math Tablet to the point of being able to announce and possibly attract new recruits
- Identify and promote the top projects with a coherent strategy
- Plan a Public Invention event in conjunction with some other organization.
- Develop a fundraising strategy
- Build a better website and web presence
- Establish a “shop” for selling swag and merchandise
- Create more recruiting efforts
- Continue working on Number Spectra project

Financials

On July 5th, we have spent \$1,475.42 of our original \$5,000 gift from Rob. Most of this has been spent on equipment for the projects the summer students are working on.

Closing Thoughts

Given that there are now 5 active projects underway, two additional Invention Coaches, and two summer students, we seem to have developed some definite momentum.

We remains largely unknown; our outreach efforts, in the form of writing, produce steady but very low numbers of impressions. Stephanie and I believe that more public speaking needs to be a major goal. We are slowly developing a new website and have contracted approximately \$1,000 worth of services from a professional designer.

I would like to emphasize environmental projects in the future; I have to fight against the tendency to do math and computer science-related projects. Nonetheless, our two other Invention Coaches are working on software-only projects, and I do not think we should turn any such project away.

I was hit by a car on my bicycle and severely injured my shoulder; this has hampered my effectiveness, but I expect to be mostly back to normal in a few more weeks.

The segmented helix project has taken an enormous amount of time, but produces some extraordinary results. This project grew out of the Public Invention Mathathon of 2018, which will be mentioned in the paper. I hope to have this paper ready for publication by the end of July. This is an example of dilemmas which we will constantly face: whether to invest in “follow through” and serious publication, or to invest in recruiting, outreach and developing new projects. I personally believe we need to distinguish ourselves from other organizations by emphasizing “follow through” and real results. As painful as it has been to spend months on the segmented helix project, I remain convinced it was the right thing to do.