# Costs:

## Crowdsourcing Campaign: DMO

The idea of crowdsourcing Project PAM was brought up during the spring; however, it was decided to be too much of a commitment for the team members at that time. As the semester continued and the estimated cost of building the prototype became apparent crowdsourcing was again looked at. The decision was made at the beginning of the fall to move forward with a crowdsourcing campaign.

The first step of this process was to pick a crowdsourcing platform. Originally Kickstarter was chosen; however, after during the process of trying to create the campaign it was determined Kickstarter did not meet the needs of the project. Because of this Indiegogo was chosen as the crowdsourcing platform for Project PAM.

One of GitHub’s features called GitHub Pages, which hosts simple static HTML websites for free and provides Creative Commons licensed templates to use, was used to develop a website for Project PAM [GitHub Pages]. GitHub supports both project pages (website for repo) and organization pages. For Project PAM an organization page along with two project pages (Hardware and Software Repos) were created using the Architect theme as a starting point. The print outs of the website are included at Appendix.

<https://pages.github.com/>

### Indiegogo

The first part of the Indiegogo campaign was to take the information from the website and modify to follow the Indiegogo Playbook, a guide to running a successful crowdsourcing campaign [Indie Playbook]. Indiegogo recommends creating a short video to introduce the project and be a commercial for the product [Indie Playbook]. The decision was made to use an online tool called Prezi, a kind of PowerPoint tool for presenting ideas on a virtual canvas [Prezi]. With the help of a student in the Mass Communications program voice over was recorded for the Prezi.

The second step for the Indiegogo campaign was to set the funding goal for the campaign. Unlike other crowdsourcing platforms Indiegogo has an option to allow the campaign to keep all funds raised instead of requiring the campaign to reach the goal to receive the funds. Indiegogo calls this option flexible funding and charges a higher rate if the goal is not reached. Because of this and the ability to receive funds that were donated through PayPal immediately it was decided to use Indiegogo flexible funding option [Indie Funding]. The main portion of the project that was hoped to be funded through the crowdsourcing campaign was the two 1080p projectors, which at the time coasted a total of $1,400. Because of Indiegogo’s and credit card companies’ percentage they take of the raised funds and it was decided to set the goal at $2,500. This goal would have made possible for the purchase of the two projectors along with the purchase of additional resin and additional prototyping costs.

The final step was to decide on the perks for funders to claim. It was decided for Project PAM to have 4 perks at differing price points. The perks that were used for Project PAM are described in Table 1 along with the number of funders who claimed them.

Table 1. Indiegogo Perks

|  |  |  |  |
| --- | --- | --- | --- |
| Perk | Price | Description | Number Claimed |
| Thank You | $5 | For contributing $5.00 or more you will receive a personalized thank you email from the team and you will be immortalized as a funder on our website. | 0 |
| Key Chains | $25 | For a contribution of $25.00 or more you will receive one Open Source Hardware Association logo key chain AND one Open Source Initiative logo key chain. Our intent is to 3D print these key chains with the Project PAM prototype. (Additional cost of $10 for international shipping.) | 7 |
| Bound Documentation of Design | $250 | For a contribution of $250.00 or more you will receive all documentation associated with the design professionally bound and well presented. Also includes $25 perk. (Additional cost of $50 for international shipping.) | 1 |
| Full Kit and Documentation | $1500 | For a contribution of $1,500.00 or more you will receive a full unassembled build kit for the printer. (The kit does not include projectors.) Also includes $25 perk and $250 perk. (Additional cost of $300 for international shipping.) | 0 |

The campaign was launched on September 30, 2014 and was originally planned to be 14 days and end on October 14, 2014. However, after a week and a half the decision was made to use Indiegogo’s one time campaign extension to extend it to a full 30 days and to end on October 28, 2014. The performance of the campign is shown in Figure 1. The majority of the funds raised was raised in the final day of the campaign, it went from $300 to $700 during that day.

Overall $741 was raised, in 11 contributions, of the $2,500 goal or the project was 29.64 % funded. This does not include funds raised outside of Indiegogo. If the funds raised outside of the Indiegogo are included the total was around $960, which was enough to purchase a single refurbished 1080p projector and additional items needed for prototyping. Additionally the Indiegogo page had 1,253 visits and 146 referrals.

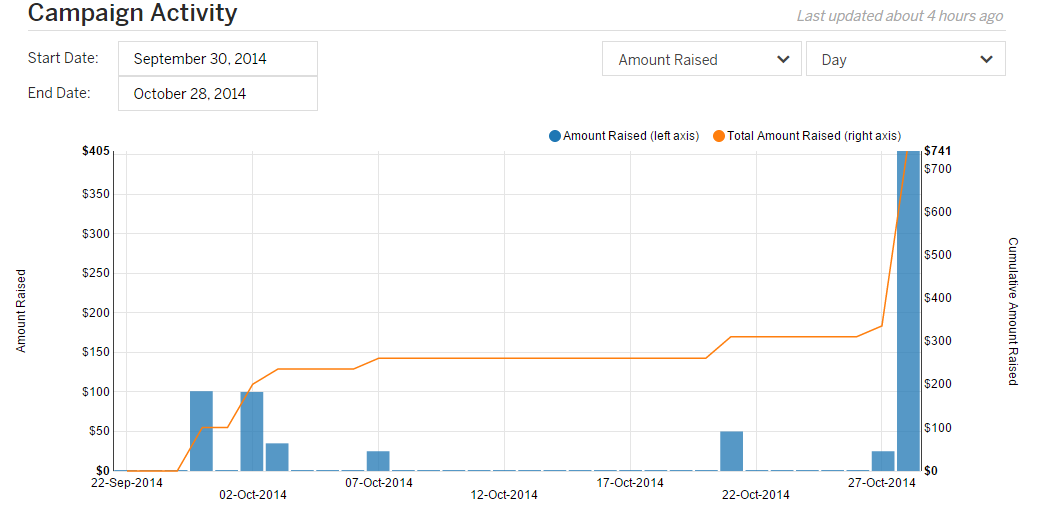


Figure 1. Crowdsourcing campaign activity

### Social Media

In addition to the GitHub origination for Project PAM and the Gmail account for email social media accounts/pages were created as part of the crowdsourcing campaign.

Twitter (@ProjectPAM), Facebook, Google+, YouTube.

Mailing list and GitHub Issue tracking

Twitter:

Tweets: 59

Followers: 17

Facebook:

Likes: 40

YouTube:

Project PAM Promo: 891 Views

Project PAM: First Render: 171 Views

### Media Coverage

3DPrint.com: [Project PAM – College Students Look to Create an Entirely Open Source DLP 3D Printer](http://3dprint.com/17504/project-pam/)

3DPrintingIndustry.com: [Help The Open Sourced DLP 3D Printer called Project Pam on Indiegogo?](http://3dprintingindustry.com/2014/10/02/help-open-sourced-dlp-3d-printer-called-project-pam-indiegogo/)

WSIU: [SIU Engineering Students Use Crowdfunding for 3D Printer](http://news.wsiu.org/post/siu-engineering-students-use-crowdfunding-3d-printer)

Make Magazine: Cool Crowdfunding: October 26, 2014 <http://makezine.com/2014/10/26/cool-crowdfunding-october-26-2014/>

## Prototype Costs: DMO

Table 2. Cost of subsystems

|  |  |
| --- | --- |
| Subsystem | Price |
| Motion control | $113.61 |
| Chassis | $315.99 |
| Hardware software interface | $25.97 |
| Motors/motor control | $82.83 |
| MakerJuice G+ resin | $45.00 |
| Total | $602.17 |

Table 3. Total Cost

|  |  |
| --- | --- |
| Subsystem | Price |
| Printer | $602.17 |
| Projector | $690.00 |
| Total | $1292.17 |

# Schedules:

## Proposed and Reworked Schedule: DMO

Addition of Nate

## As Worked Schedule: DMO

Procurement Problems

Jig

# Subsystem Descriptions

## Printer Control Software: DMO

### Process of Design

Proposal from last semester

Wait for B9 Creator update and associated licensing

Problems with B9Creator

<http://3daddfab.com/blog/index.php?/archives/5-AMF-The-3D-Printing-Format-to-Replace-STL.html>

<http://www.shapeways.com/blog/archives/898-amf-a-better-file-format-for-3d-printing.html>

Problems with OSS CAM

Start from scratch

Define own platform

Define own user interface

Lots of work and mediocre results

Python

UI Requirements

Ribbon Interface

Toolboxes that act like wizards

### development Process

KDevelop and KDevPlatform/KDE Frameworks 5

Pre Alpha Stage

Release next year

Qt 5

Ot 5 Open GL

<http://doc-snapshot.qt-project.org/qt5-5.4/qopenglwidget.html>

<http://qt-project.org/doc/qt-5/qtopengl-index.html>

<http://qt-project.org/wiki/New-Features-in-Qt-5.4>

### development SCHEDULE

LibreCAM

Ver. 0.1.0:

Ver. 1.0.0:

Ver. 2.0.0:

LibrePAM

Ver. 0.1.0:

Ver. 1.0.0

Ver. 2.0.0

### Health and Safety Issues

Stuff that is made

### Recommendations

<https://www.kdevelop.org/frameworks/kdevelop-master-now-depends-kde-frameworks-5>

<https://www.kdevelop.org/news/kdevelop-470-released>

<http://qt-project.org/doc/qt-4.8/qtopengl.html#details>

<http://qt-project.org/doc/qt-5/qtgui-index.html#opengl-and-opengl-es-integration>

<https://github.com/ktechlab/ktechlab>

<https://go.indiegogo.com/playbook>