CROWDFUNDING FOR SMALL SATELLITES
Crowdfunding for Small Satellites

I. What is Crowdfunding

II. Successful satellite campaigns

III. How to create a successful campaign
Crowdfunding for Small Satellites

I. What is Crowdfunding

II. Successful satellite campaigns

III. How to create a successful campaign
Crowdfunding is the practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the internet.

(Oxford Dictionary)
Crowdfunding is the practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the internet.

(Oxford Dictionary)
Crowdfunding is the practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the internet.

(Oxford Dictionary)
Billions Available for Crowdfunding

Total Amount of USD ($bn) Raised in Crowdfunding Campaigns

- 2009: 0.5
- 2010: 0.9
- 2011: 1.5
- 2012: 2.7
- 2013: 5.1
- 2014E: 9.6
Four Types of Crowdfunding

- Reward Based
- Equity Based
- Lending Based
- Donation Based
Four Types of Crowdfunding

- Reward Based
  - 91,585 people made this happen.
  - Veronica Mars. Now on iTunes.

- Equity Based

- Lending Based

- Donation Based
Four Types of Crowdfunding

- **Lending Based**
- **Reward Based**
- **Donation Based**
- **Equity Based**

---

**Kickstarter**

Reward based
91,585 people made this happen.

**CircleUp**

Connecting Investors with Consumer Brands

**Lending Based**

**Donation Based**
Four Types of Crowdfunding

- Lending Based
- Reward Based
- Donation Based
- Equity Based
Four Types of Crowdfunding

- **Lending Based**
- **Reward Based**
- **Donation Based**
- **Equity Based**
Crowdfunding Will Increasingly Launch Companies

- 90% of the top 50 highest grossing campaigns of all time later raised VC capital and became full companies

- Non-crowdfunded companies have 3x the likelihood of failure

- Equity based crowdfunding is
  - growing 2x as fast as rewards based crowdfunding
  - raises 10x the amount of reward based crowdfunding
Crowdfunding for Small Satellites

I. What is Crowdfunding

II. Successful satellite campaigns

III. How to create a successful campaign
Crowdfunding for Space Works

Help us build a satellite
by Space Concordia

Funded! This project was successfully funded on Dec 1.

218 backers
$15,426 CAD
pledged of $15,000 goal
0 seconds to go
Crowdfunding for Space Works
Crowdfunding for Space Works

CAT: Launch a Water-Propelled Satellite into Deep Space
by Benjamin Longmier, Ph.D.

Funded! This project was successfully funded on Dec 21.

1,185 backers
$96,799 pledged of $50,000 goal
0 seconds to go
Crowdfunding for Space Works

ArduSat - Your Arduino Experiment in Space
by ppl4world

Funded! This project successfully raised its funding goal on Jul 14, 2012.

676 backers
$106,330 pledged of $35,000 goal
0 seconds to go

Funding period
Jun 15, 2012 - Jul 15, 2012 (30 days)

Project by
ppl4world
San Jose, CA
Contact me
Crowdfunding for Space Works

KickSat -- Your personal spacecraft in space!
by Zachary Manchester

Funded! This project successfully raised its funding goal on Dec 3, 2011.

315 backers
$74,586 pledged of $30,000 goal
0 days left

Running period
Oct 4, 2011 - Dec 3, 2011 (60 days)

Would you like to have your own spacecraft? Kickstart the

KickSat.org
Crowdfunding for Space Works

ARKYD: A Space Telescope for Everyone
by Planetary Resources

Funded: This project successfully raised its funding goal on Jun 30

17,614 backers
$1,505,366 pledged of $1,000,000 goal
0 seconds to go

The first publicly accessible space telescope! Take amazing photos of space or have your photo displayed above the Earth.
Crowdfunding for Small Satellites

I. What is Crowdfunding

II. Successful satellite campaigns

III. How to create a successful campaign
Planning of the campaign starts at least 2 months before campaign start

Presentation, including a top-notch video, are key to success
  – The quality of the product and the presentation drive success of funding campaigns

High level of engagement and PR before and throughout the campaign are crucial for success
Research Donations and Length

• Longer campaigns have smaller chance of success
• Carefully select donations level, run A/B tests
  – ArduSat ran a study on donation levels pre-campaign as well as during the campaign, and adjusted donations level, increasing funds raised by 8%
EXAMPLE: ArduSat Timeline

- T – 3 months: Planning
- T – 1 month: Soft Start campaign, line up media
- T : Launched with media coverage
- T + 6 days: Met initial goal of 35,000 USD
- T + 30 days: Closed campaign with 106,000 USD
- T + 14 months: Two 1U CubeSats in space
We love Arduino and we love space exploration. So we decided to combine them and let people run their own space experiments!
UPDATE: Help us break the 100k barrier! So join us now!

UPDATE: We've posted a bunch of ideas for ArduSat apps on our Ideas page! Just imagine - you could be at the helm of a machine that, in only an hour and a half:

- flies away over the horizon at over 18 times the speed of sound,
- detects meteors vaporizing in the skies over Europe,
- photographs the sunset over the horn of Africa,
- maps the Earth's magnetic field cruising over the Indian Ocean,
- snaps a picture of the Southern Lights dancing underneath off the coast of Australia,
- samples the upper atmosphere to learn about biomarkers and other signs of life,
- stares down the eye of a hurricane,
- maps the emitted spectrum of the sun,
- generates truly random numbers valuable to the financial, security and science community.
- is already back over your head, having circled the entire planet!

More technical details on the satellite design in the video below:

Pledge $1 or more
130 backers
Every dollar helps! With any donation, you can join the discussions on the comment page and the backers list on our website. Furthermore, you have our personal gratitude, and we'll prove it to you with a personal thank-you email.
Estimated delivery: Aug 2012

Pledge $10 or more
76 backers
SHOUTOUT: You have our personal gratitude for supporting the project and we'll prove it to everyone by Tweeting you a thank-you (optional for the super-modest!)
Estimated delivery: Jul 2012

Pledge $25 or more
312 backers
All of the above plus a customized picture taken by the satellite, signed by the team!
Estimated delivery: Jul 2013

Pledge $50 or more
75 backers
All of the above and a set of five signed prints of the satellite design!

Pledge $100 or more
5 backers
All of the above and a set of five signed prints of the satellite design, plus a personal video call with the team!
NASA Johnson Space Center.

The ArduSat Mission

Our mission is to provide affordable space exploration for everyone!

We want to get you into space! Once launched, the ArduSat (Arduino – satellite) will be the first open platform allowing the general public to design and run their own space-based applications, games, and experiments, and steer the onboard cameras to take pictures on-demand.

By supporting the project you're not only reserving your place at a discounted price at the front of the line to use it once it's in space, but you're helping us develop a platform to make space access affordable and achievable for anyone.

What you can do with ArduSat

To get your creative cogs turning, here are just a few of the ideas the ArduSat developers are cooking up. For even more application challenges and some ideas for high school and university student projects, check out our idea page and get commenting! http://tinyurl.com/ArduSatAppIdea3s

SCIENCE: Meteor Hunter - Small meteors that strike the atmosphere every day create trails of ionized gas in the atmosphere in the upper atmosphere. Write an experiment to try and detect meteor impacts by listening for radio stations beyond the horizon, reflected by the meteor trails!

FINANCE and SECURITY: True Random Number Generator - Cosmic rays are truly random and can be used to generate a sequence of truly random numbers. These are crucial (and hence valuable) for devising and testing financial models, secure codes, simulations and other scientific and commercial applications.

ENGINEERING: Your Eye in the Sky - Try writing an app that would synchronize the output of a head mounted-gyro to the steering system on the satellite. If you're feeling really ambitious, try downlinking the altitude vector in real-time to watch the satellite follow your head... you could even place your head close to your mouse pad (or use a joystick) and control the satellite from your seat!

Pledge $100 or more

37 backers

ARDUNAUT: All of the above, plus your initials on the satellite. You also get a print of a satellite delivered to your inbox, which you can print out and fold into ArduSat!

Estimated delivery: Jul 2013

Pledge $150 or more

77 backers

By pledging at least $150, you're pre-ordering the chance to take up to 15 space pictures, steering the direction of the satellite and the time of your choosing and have them delivered to your inbox.

Estimated delivery: Jul 2013

Pledge $300 or more

1 backer  All gone

By pledging at least $300, you're pre-ordering a time slot to broadcast a personal message from space for up to a day, during which ArduSat flies over every point on Earth. You give us the message, we do the rest! You will receive a personalized recorded thank you message from a Science Cheerleader, and if you want to dedicate the message to someone, we will add that to the message!
Ardusat Kickstarter Page

How it Works

Antenna
UHF Dipole, GOMSpace

Structure
15/1 1U CubeSat Frame

Solar Panels
Pi00U-A, GOMSpace

Electrical Power Supply
NanoPower P31u, GOMSpace

Flight Control Computer
NanoMind A712C, GOMSpace

UHF Transceiver
NanoCom U412C, GOMSpace

Spectrometer
Spectrum, MySpectral

Payload
Arduino-Based Computer & Sensors

explore/applications using the STANDARD sensor package. The first 50 to sign up will also receive a subscription to Discover Magazine and a SoiStarter T-Shirt. You can read more about the sensors in this package in the FAQ section.

Estimated delivery: Jul 2013

Pledge $775 or more

5 backers

PIONEER: By pledging at least $775, you’re guaranteed a full week of uptime on the satellite, where you can run your own custom experiments/applications using the ADVANCED sensor suite. You can read more about the sensors in this package in the FAQ section.

Estimated delivery: Jul 2013

Pledge $600 or more

10 backers

PIONEER: By pledging $600, you’re pre-ordering a full week of uptime on the satellite, where you can run your own custom experiments/applications using the ADVANCED sensor suite. We will also deliver to you a customized Labops lab coat and a SoiStarter T-Shirt. You can read more about the sensors in this package in the FAQ section.

Estimated delivery: Jul 2013
To run your application, experiment or steer the camera you can write your own code from scratch, leverage existing codes available on the internet or use one of the templates we will make available to our backers, creating a growing library of code elements.

Through our web-interface you can then upload your code to our exact replica of the satellite on the ground and make sure that it works as intended. Once you’ve worked out any bugs in your experiment (not that you would have any…) we will run a final test before it is uploaded into space to ArduSat. Now your code is running in space, steering the satellite and gathering data! Once the time you have backed on ArduSat is expired, we will send back the data to you via the internet.
A mock up of the web interface, showing you the current location of ArduSat and what its cameras can ‘see’.

**Why You’ll Want In**

Propose A Sensor or Cool Experiment and fly them in space!

Besides being first in line to use the satellite when it goes online (and the obvious bragging rights that come with it), backers will also have the opportunity to propose additional sensors to include in the payload. Our mass budget currently allows for approximately 5 additional sensors, and we’re holding a voting competition for the best ideas.

Discover Magazine is also holding a competition for the most innovative experiment or application for ArduSat with a grand prize worth $1500 (for details see our extensive FAQ section at the bottom).

What You’re Paying For

We’ve already developed a prototype of the Arduino box, the sensors, and the software that lets us remotely upload code to the satellite. We’ve also designed the satellite bus to carry all of those sensors and Arduinos; now we need your support to finance the hardware and assembly costs of the satellite itself, and the launch cost to put it into orbit.

Our fundraising goal is 35,000 USD, which will allow us to build, test, and integrate all of the hardware and software needed for a 1U ArduSat. As soon as the funding goal is met, we can move ahead with applications for free launches through various NASA or ESA ride-along programs. We believe that this project has enough technical, scientific, and outreach value to successfully secure a launch with these programs. However, if we are not successful in securing a launch with these programs within 18 months, we have secured funding to buy a commercial launch for ArduSat to make sure it reaches orbit.
• Campaigns without a (good) video have an 85% chance of failure
• Spelling mistakes drastically reduce campaign success
• Trust in the funding platform matters greatly – Kickstarter has majority of all time highest grossing campaigns, curates projects and has fully-funded requirement
# KICKSTARTER PHRASES THAT PAY (AND DON’T)

New Georgia Tech Study Finds Pitch Language Plays Major Role in Success of Crowdfunding Projects

<table>
<thead>
<tr>
<th>Funded</th>
<th>Non-Funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. also receive two</td>
<td></td>
</tr>
<tr>
<td>2. mention your</td>
<td></td>
</tr>
<tr>
<td>3. given the chance</td>
<td></td>
</tr>
<tr>
<td>4. your continued</td>
<td></td>
</tr>
<tr>
<td>5. we can afford</td>
<td></td>
</tr>
<tr>
<td>1. not been able</td>
<td></td>
</tr>
<tr>
<td>2. even a dollar</td>
<td></td>
</tr>
<tr>
<td>3. later i</td>
<td></td>
</tr>
<tr>
<td>4. a blank</td>
<td></td>
</tr>
<tr>
<td>5. hope to get</td>
<td></td>
</tr>
</tbody>
</table>

Source: Eric Gilbert and Tarushree Mitra - Comp. Social Lab/Georgia Tech
• Larger social networks increase chance of success (e.g. 10 FB contacts = 10% chance of success, 1000 FB contacts = 40% chance of success)

• Single best predictor of campaign success if hits on your campaign page (conversion rate from hit to donor as well as average donor amount quite stable across a category)

• ArduSat had something like 100 articles during its campaigns, Arkyd about 10x of that
Crowdfunding for Space - Summary

- Crowdfunding is providing $bn of USD of funding
- Especially equity crowd funding for companies is growing
- Crowdfunding for space works – there are now 3 crowdfunded satellites in space
- A successful campaign is exhausting, and requires careful planning and thorough execution
  - Video
  - Wording
  - Campaign length and reward
  - Media, PR, social networks,
We are hiring!

http://www.nanosatisfi.com/careers

Open Positions

To sign up for job notification click here.
To check on an application you’ve submitted click here.
NanoSatisfi, Inc. competes for the best talent.

Please check our open positions below. If you don’t see a position that interests you, click here to let us know how you can make a difference at NanoSatisfi, Inc..

Computers/Software

Distributed Platform Engineer
Satellite Engineer

Engineering

Groundstation Engineer
Satellite Operations Engineer

Other

Create Your Own Role

San Francisco, CA, United States
San Francisco, CA, United States
San Francisco, CA, United States
San Francisco, CA, United States
San Francisco, CA, United States