THE
HUMANITARIAN
FOSS PROJECT

Building Free Open Source Software for Society

Humanitarian FOSS Project Overview

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Sahana Disaster Management

Camp Roberts, CA, Nov'09

Strong Angel III, San Diego, June 2006

Educational Motivation

- David Patterson (ACM) Nov. 2005, (post Katrina):
  Let's help our neighbors!

- David Patterson (ACM) Mar. 2006:
  Join the open-source movement!

- Our Question:
  Will students building software for the community help revitalize computing education?
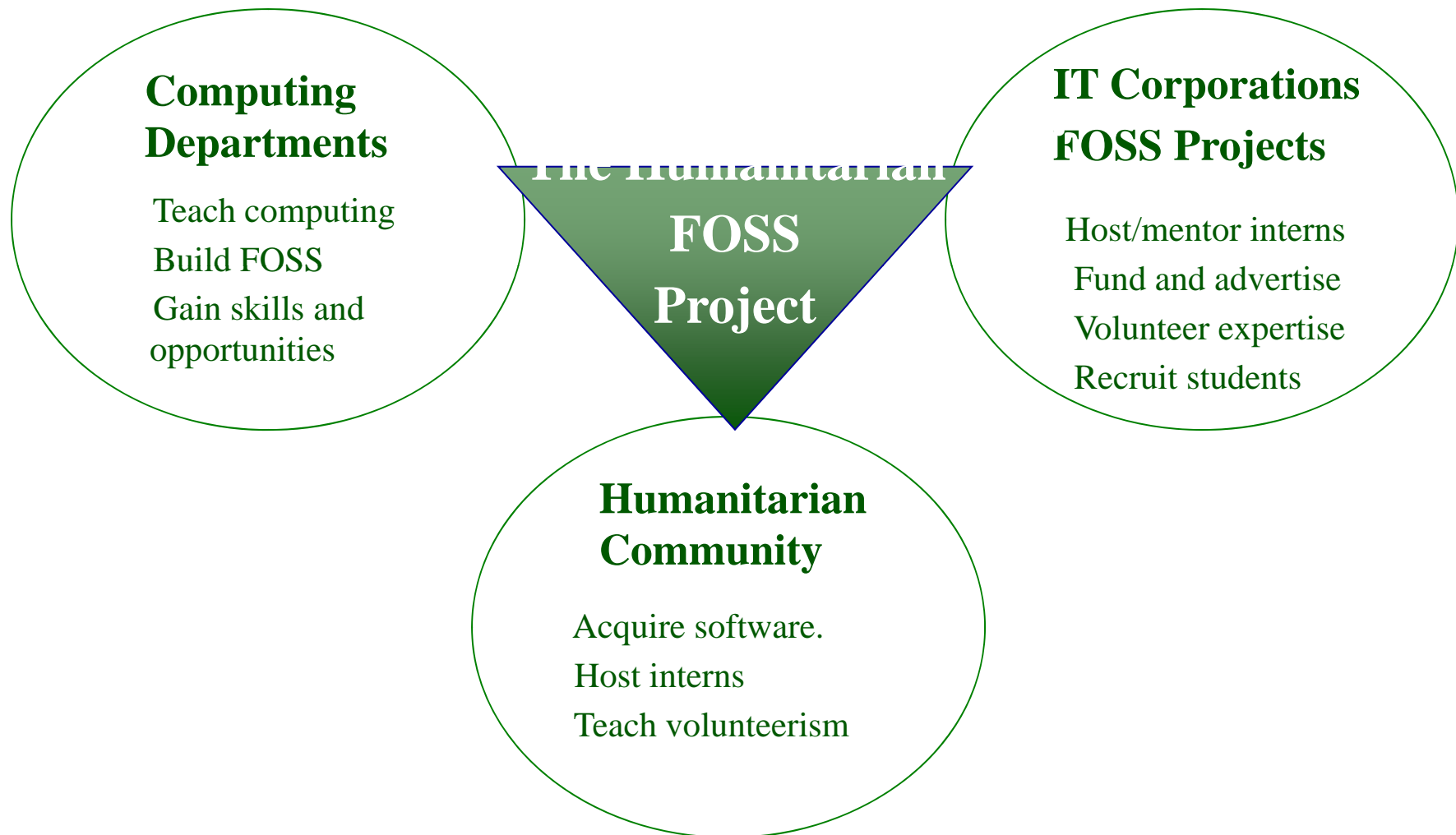
NSF/CPATH Grants

- NSF CPATH Grants: 496K (07-09), 798K (09-11).

- Collaborators: Trinity, Connecticut College, Wesleyan.

- Activities:

  - Trinity-Conn-Wesleyan video conference courses.

  - Summer internship program 2008/9/10.

  - Annual Symposium on computing curriculum (@SIGCSE).

- Current Initiatives

  - Community Building: HFOSS Chapter Initiative.

  - HFOSS Certificate program

  - Sustainability model.

Goal: A Sustainable Community

Computing Departments

Teach computing

Build FOSS

Gain skills and opportunities

The Humanitarian FOSS Project

IT Corporations FOSS Projects

Host/mentor interns

Fund and advertise

Volunteer expertise

Recruit students

Humanitarian Community

Acquire software.

Host interns

Teach volunteerism
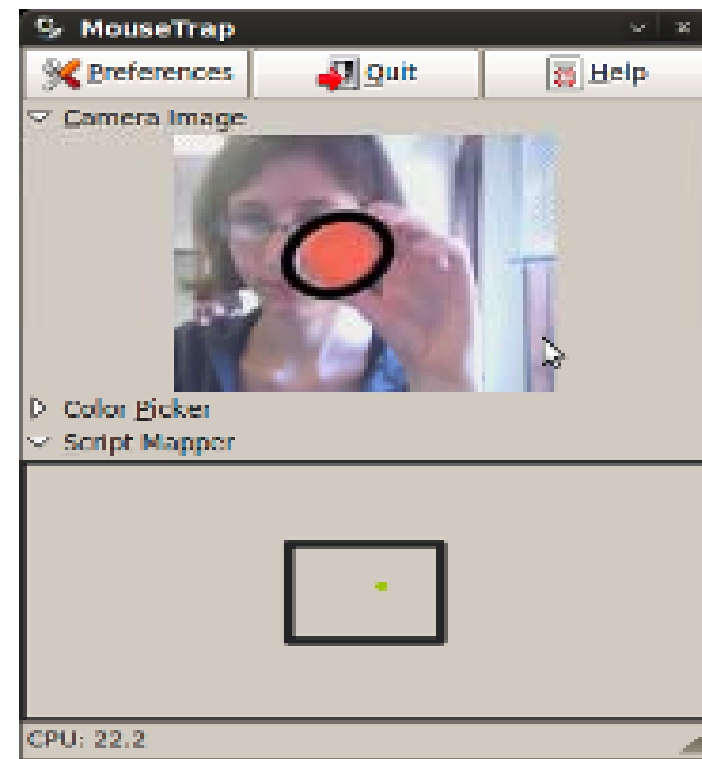
GNOME Accessibility

- Mousetrap – mouse tracking for physically impaired.

- VizAudio – visual feedback cues for hard-of-hearing.

ANDROID Portable Open Search Identification Tool

Open Mobile Camp, UNICEF, Oct' 09

Collabbit: Lightweight Coordination Tool

HFOSS Summer Institute

2009

2008

2007

Why Should NSF Support FOSS Research?

FOSS has Humanitarian Roots

The Humanitarian-FOSS Project © 2010 HFOSS Overview (Fall 2010)

FOSS and Science

- FOSS
  - Open collaborative development process.
  - Freely licensed distribution model.

- Benkler – commons-based peer production
  - Wikipedia
  - Architecture for Humanity
  - NASA click workers
  - …

- Industrial Science
  - Proprietary, trade-secret, development process.
  - Property based distribution model.

Problems with the Current Closed Model

- ## Biology/Medicine – patents on genes?
  - ### ACLU BRCA1 and BRCA2 lawsuit.

- ## Synthetic biology – should biological building blocks be proprietary?
  - ### Drew Endy: Image if computer scientists had patented the semicolon!

- ## Agriculture – why doesn't everyone trust genetically modified food?
  - ### Monsanto's Roundup Ready Patent

- ## Scientific publishing –
  - ### Should NSF/NIH research results be freely disseminated?
  - ### What will be published if science becomes (more) proprietary?

Open Source Science Initiatives

- Public Library of Science
- CAMBIA
- Design That Matters (MIT)
- Science Commons

Can FOSS work in science?

ALS Biomarker

Challenge Reward: **$1,000,000 USD**   Challenge Type: **RTP**   INNOCENTIVE **8305421**
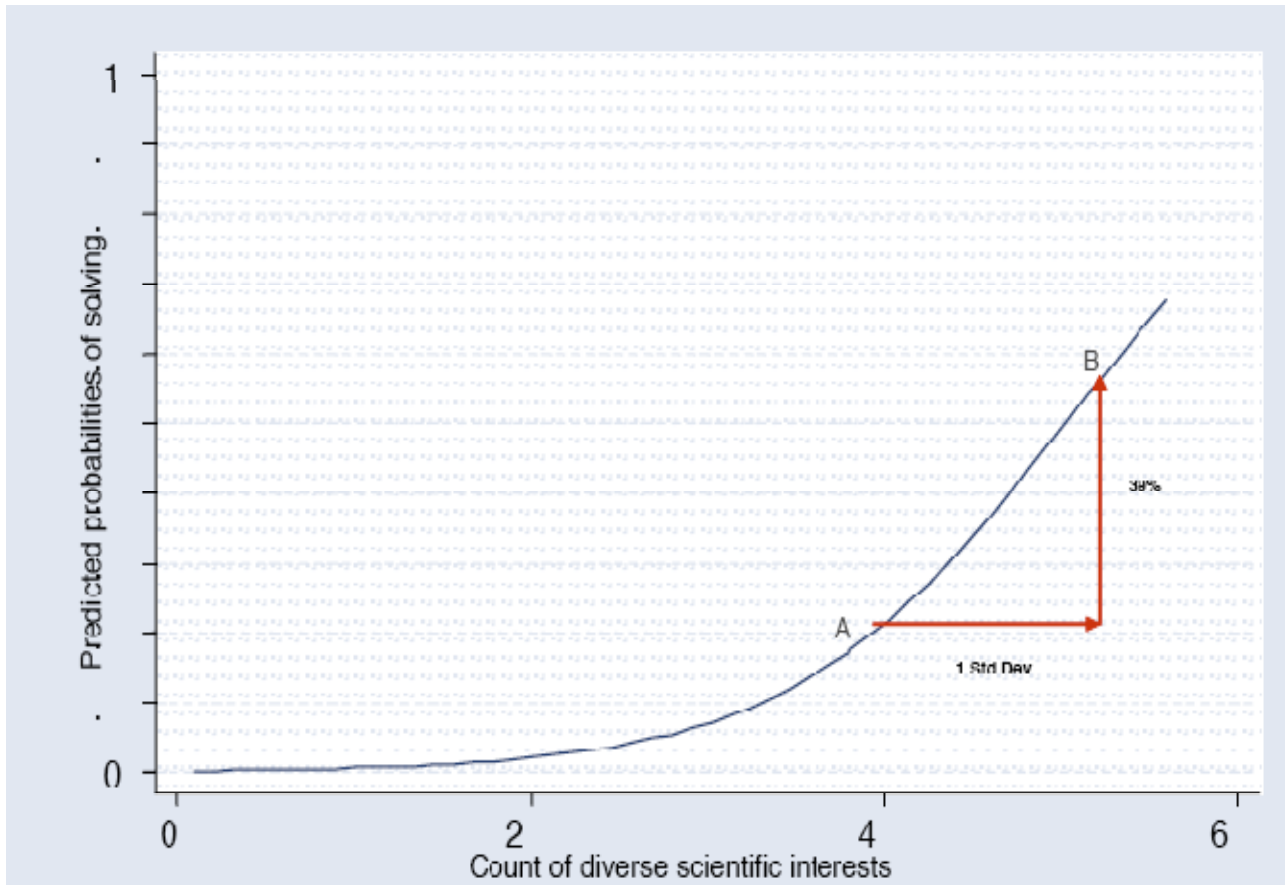
PRIZE4LIFE   Amyotrophic Lateral Sclerosis (ALS or Lou Gehrig's Disease) is a fatal neurodegenerative disorder characterized by selective death of motor neurons in the brain and spinal cord. This leads to muscle weakness, atrophy, and gradual paralysis. At present, there is no effective therapy for the disease and patients usually die within 2-5 years after the onset of symptoms. In order to accelerate the identification of effective treatments for ALS, a biomarker for measuring disease progression is needed. Read More

DEADLINE: **May 15, 2011**   11 Project Rooms   Challenge Posted: May 15, 2009

- Open Innovation Business Model
- Innocentive.com
- Broadcast search vs. local search

MIT Study

- 166 previously unsolved, scientific problems.

- 80,000 scientists in 150 countries.

- 49 problems solved.

- Financial Awards: Mean $29,700 Range: $2000 - $105,000

Src: Lakhani et *al.*, *The Value of Openness in Scientific Problem Solving* (MIT, 2007).

So…some research questions

- ## Would the FOSS model work for science?

  - Is the FOSS model itself sustainable?

  - What motivates FOSS participants?

  - Does more openness and transparency advance scientific research?

  - What are the viable business models..for FOSS? ..for science?