



Robot Garden, and Other Maker Spaces, Play an Important Role in the Community

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Abstract

Makerspaces, also known as Hackerspaces, are community places where people can meet and work on their projects, take classes, or participate in other collaborative efforts. We are fortunate to have a public maker space in the Tri-Valley called Robot Garden which may be the first robotic-themed makerspace in the world. The organizers at Robot Garden seek to promote innovation, creativity, learning, personal and community development, and the creation of tangible new technology through collaboration, classes, and by providing resources for the members and the wider community. I also believe that makerspaces, along with Massive Open Online Courses (MOOCs) such as Udacity and Coursera, will undoubtedly shape the evolution of higher education.

MakerSpaces

Makerspaces, sometimes also referred to as hackerspaces, hackspaces, and fab-labs are creative, DIY spaces where people can gather to create, invent, and learn. In libraries they often have 3D printers, software, electronics, craft and hardware supplies and tools, and more. — Google

Makerspaces are not a technological movement, but a cultural movement.

Robot Garden

Robot Garden may be the first robotics themed hackerspace in the world and will be the first hackerspace open to the community in the Tri-Valley part of the East San Francisco Bay Area. It is a non-profit (501c3) community workshop that provides infrastructure so that the community can engage in and collaborate on technology projects. RG is sponsored by the i-GATE Innovation Hub, San Diego National Lab, and Lawrence Livermore National Lab.

Robots are a central theme but other technologies such as home automation, garden monitoring, textile crafts, and 3D printing are featured. Robots provide a catalyst for excitement about STEM education. The name “Robot Garden” expresses the robot theme along with “Garden” ... a safe, nurturing environment.

Other Hacker/Maker Spaces:

- TechShop, San Francisco/San Jose
- Ace Monster Toys, Oakland
- Noisebridge, San Francisco
- Sudo Room, Berkeley
- Hacker Dojo, Mountain View
- LOLspace, Oakland
- Benicia Makerspace
- San Leandro Hackerspace
- Marin Hackerspace



A Community Resource

- Offers a creative, open environment
- Promotes innovation and collaboration
- Inspires STEM outreach and citizen science
- Connects individuals, local startups, and National Laboratory knowledge sources
- Engages with other community events:
 - Maker Faire
 - Tech Challenges
 - Arduino Days
 - The Tech Museum
 - Alameda Science Fair
 - Cal Academy of Science



Important for STEM (STEAM) Education

The large-lecture-hall format college course (aka “talking-head”) is being imitated/replaced by the Massive Open Online Course (MOOC) from Udacity, Coursera, and others. The public Maker Space is a natural complement for Science, Technology, Engineering, (Art), and Math (STE(A)M) education.

Maker Spaces provide:

- Hands-on learning
- A “learn by doing” environment
- Collaborative team experiences
- Entrepreneurial opportunities
- Real world challenges
- The Joy of making!



Workshops:

- FreeCAD
- Programming Robots Study Group
- Automated Access Controls
- Sensing and Security Systems
- Building Automation
- Garden Computer
- DIY Laser cutter
- Practical Apocalypse Survival for Makers

www.robotgarden.org

170 S Livermore Ave., Livermore, CA
Open Access: Saturdays from 11am to 3pm



Outreach at a local school



The new digs

ROBOTS

- Jibo personal assistant robots
- OpenROV
- AR.Drones for robotics classes and quad-rotor workshops
- TurtleBots
- Aibo
- Various others



... and robots!



Textiles

- Serger (Overlock machine)
- Ironing, forms, etc.

Machine shop

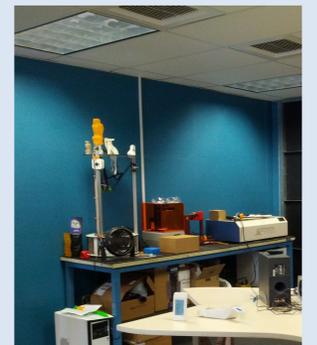
- Hand tools
- Table Saw
- Band Saws
- Scroll Saws
- Bench Sander
- CNC machine
- etc.

Prototype Lab:

- A 60W laser cutter
- An Afinia 3D ABS printer for creating durable parts with moderate resolution
- A RostockMax 3D PLA printer for creating large parts
- A FormOne SLA resin printer for creating very detailed parts
- Computers with CAD and CAM software

Electronics Lab

- Soldering irons
- Multi-meters
- Oscilloscopes
- Power supplies
- Microcontrollers
- Conductive Ink
- E-textiles



3D printers