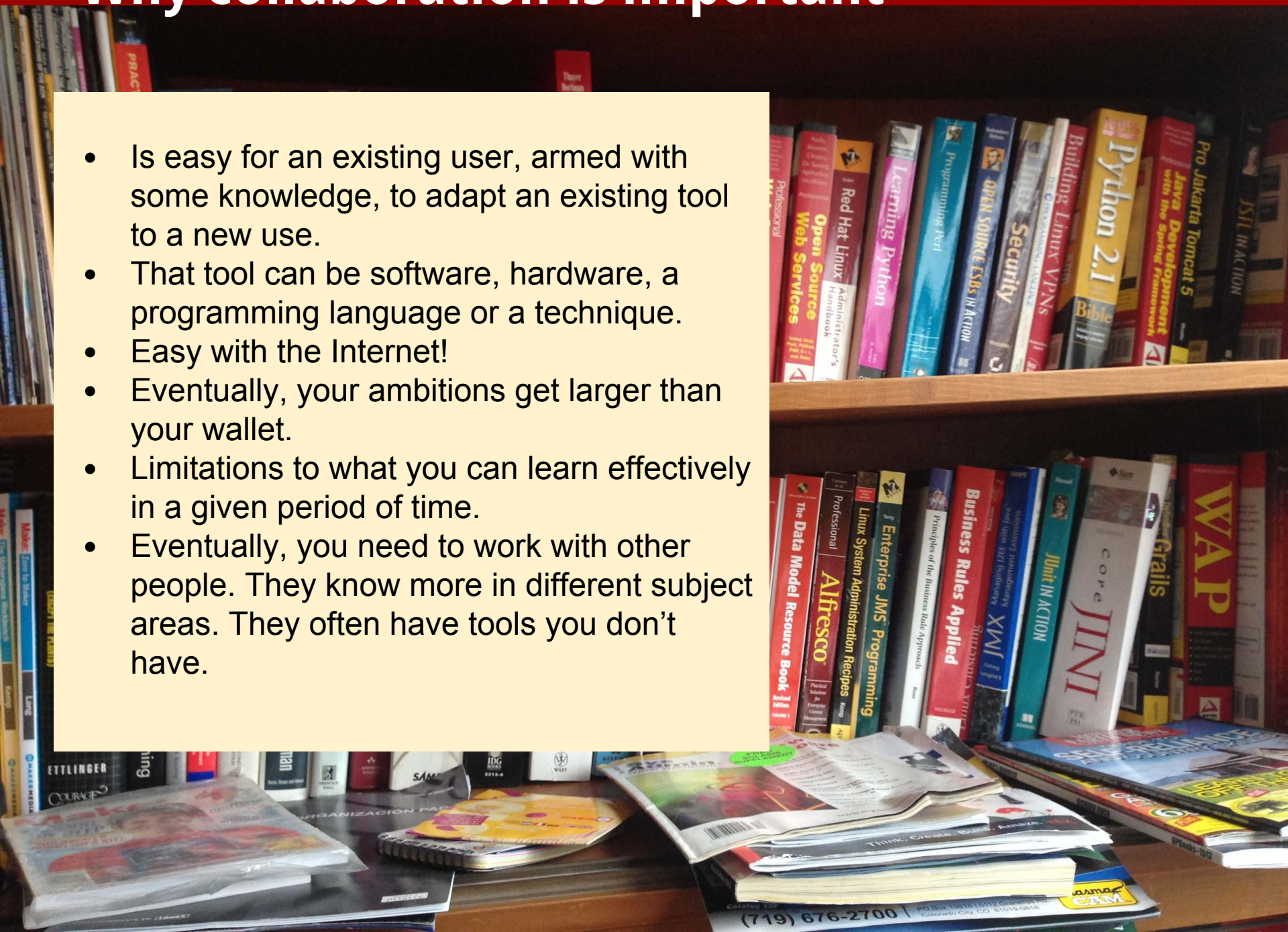
A Birmingham hackerspace
^^ er ^^ makerspace

What is open source?

- Software for which the original source code is made freely available, and may be redistributed and modified.
- Key principle of open-source software development - peer production by bartering and collaboration.
- Over time, through revisions and rewrites, leads to more robust code.
- Richard Stallman started the GNU Project in 1983.
- Linus Torvalds started working on - and sharing - the Linux code in 1991.

- **2001** - MIT Media Lab students Casey Reas and Benjamin Fry develop Processing, an open source integrated development environment (IDE) to teach programming to visual artists and designers.
- **2003** - While attending the Interaction Design Institute Ivrea in Italy, Hernando Barragan built on their work to develop his electronics prototyping IDE, Wiring.
- With instructor Massimo Banzi and others, developed a prototype open source circuit board, the Arduino, as a less expensive alternative to the BASIC Stamp board, used in many student product design assignments.

Why collaboration is important



- Is easy for an existing user, armed with some knowledge, to adapt an existing tool to a new use.
- That tool can be software, hardware, a programming language or a technique.
- Easy with the Internet!
- Eventually, your ambitions get larger than your wallet.
- Limitations to what you can learn effectively in a given period of time.
- Eventually, you need to work with other people. They know more in different subject areas. They often have tools you don't have.

Places to collaborate

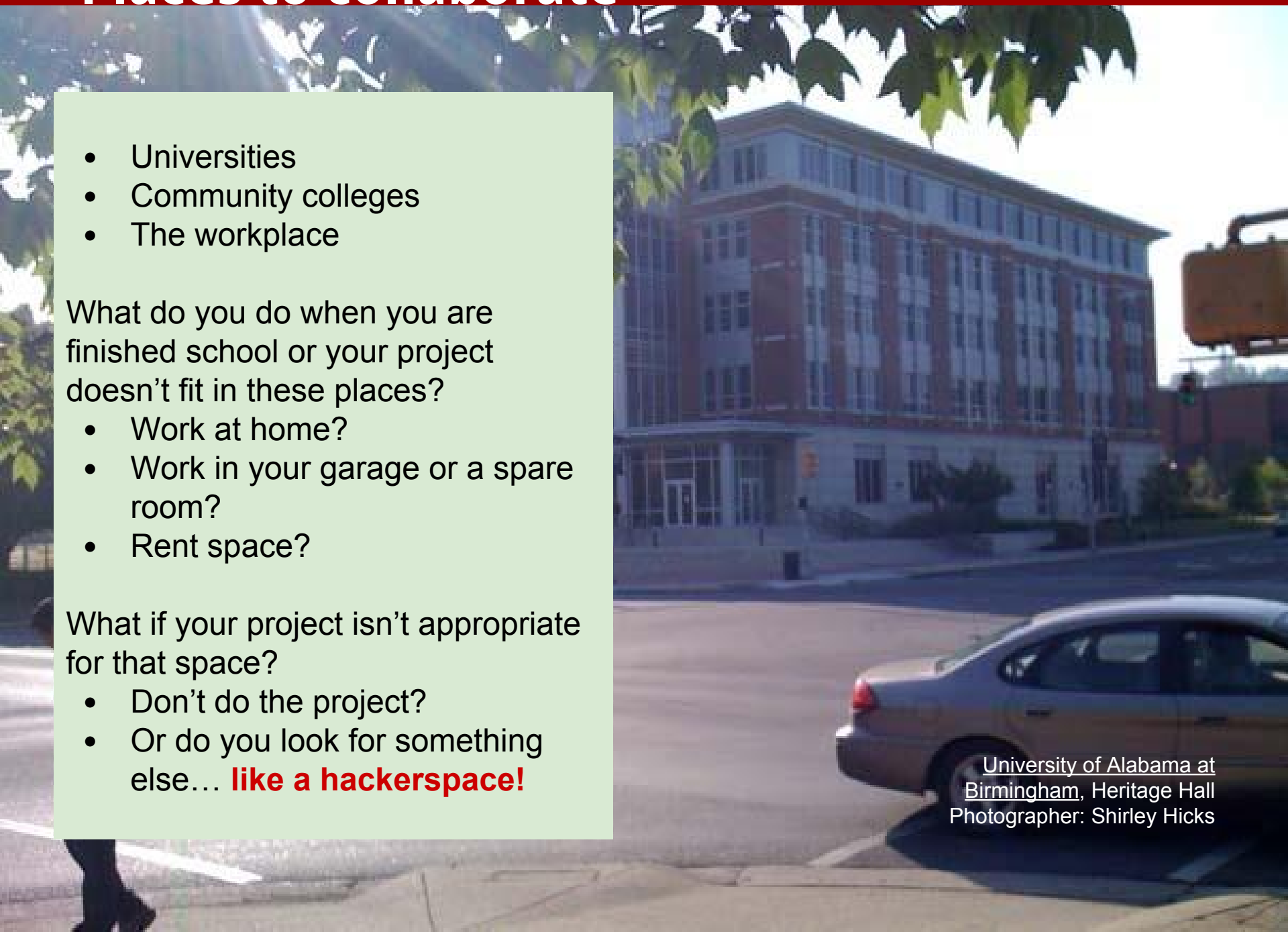
- Universities
- Community colleges
- The workplace

What do you do when you are finished school or your project doesn't fit in these places?

- Work at home?
- Work in your garage or a spare room?
- Rent space?

What if your project isn't appropriate for that space?

- Don't do the project?
- Or do you look for something else… **like a hackerspace!**



University of Alabama at Birmingham, Heritage Hall
Photographer: Shirley Hicks

What is a hackerspace?

- A hackerspace is a community-operated workspace where people with common interests, often in computers, technology, science, digital art or electronic art, can meet, socialize and/or collaborate.
- Also referred to as a hacklab, makerspace, or hackspace.

Gainesville (FL) Hackerspace

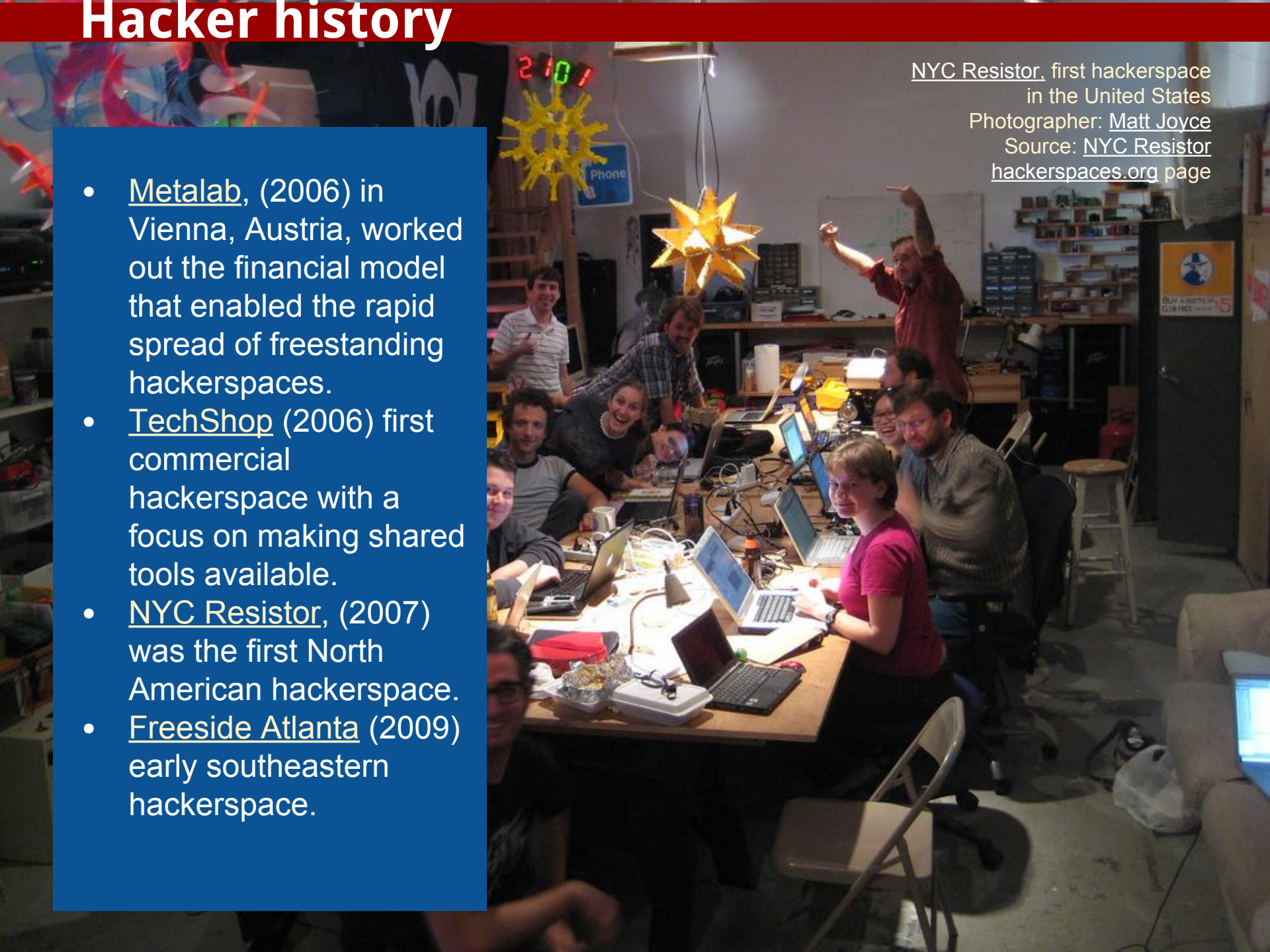
Hacker history

- John Draper figures out how to make long distance calls without paying (phreaking) in the early 1970s.
- Homebrew Computer Club (1975-1986) - early experimental forum for the personal computer.
- Berlin's Chaos Computer Club, (1981) - first hackerspace. Focused on computer security.
- Berlin's c-base (1995) - first independent hackerspace.

c-base, early Berlin hackerspace
Photographer: Ralf Roletschek
Source: Wikipedia

Hacker history

- Metalab, (2006) in Vienna, Austria, worked out the financial model that enabled the rapid spread of freestanding hackerspaces.
- TechShop (2006) first commercial hackerspace with a focus on making shared tools available.
- NYC Resistor, (2007) was the first North American hackerspace.
- Freeside Atlanta (2009) early southeastern hackerspace.



NYC Resistor, first hackerspace in the United States
Photographer: Matt Joyce
Source: NYC Resistor hackerspaces.org page

What is happening today

Lagos Maker Faire 2012:
Four girls, ages 14 and 15, developed a urine-powered generator. An electrolytic cell separates out the hydrogen, which is then purified and pushed into the generator. One liter of urine produces electricity for six hours.
Photographer: Erik Hersman

- Lessons learned regarding:
  - hackerspace launches
  - business models
  - space organization
  - product launches
  - product marketing

  are being documented and propagated via Make magazine, research papers and business media.
- Hackerspace model is spreading to Asia and Africa.
- Many more Maker Faires
- Model being applied to other activities requiring workshops and skilled labor.

Why are hackerspaces important?

- Good places to meet other people with similar interests in technology.
- Idea generation and inspiration through group interaction.
- Access to advanced tools for a modest cost.
- Learn new and/or more efficient fabrication methods and skill techniques.
- Access to people with specialized skill sets.
- Lowers the costs of working out prototypes.
- For many tech freelancers, sole proprietors and entrepreneurs starting out, also serves as dedicated work and office space.
- A turn-key pre-launch platform to launch new products whether through crowdfunding or small scale market analysis.

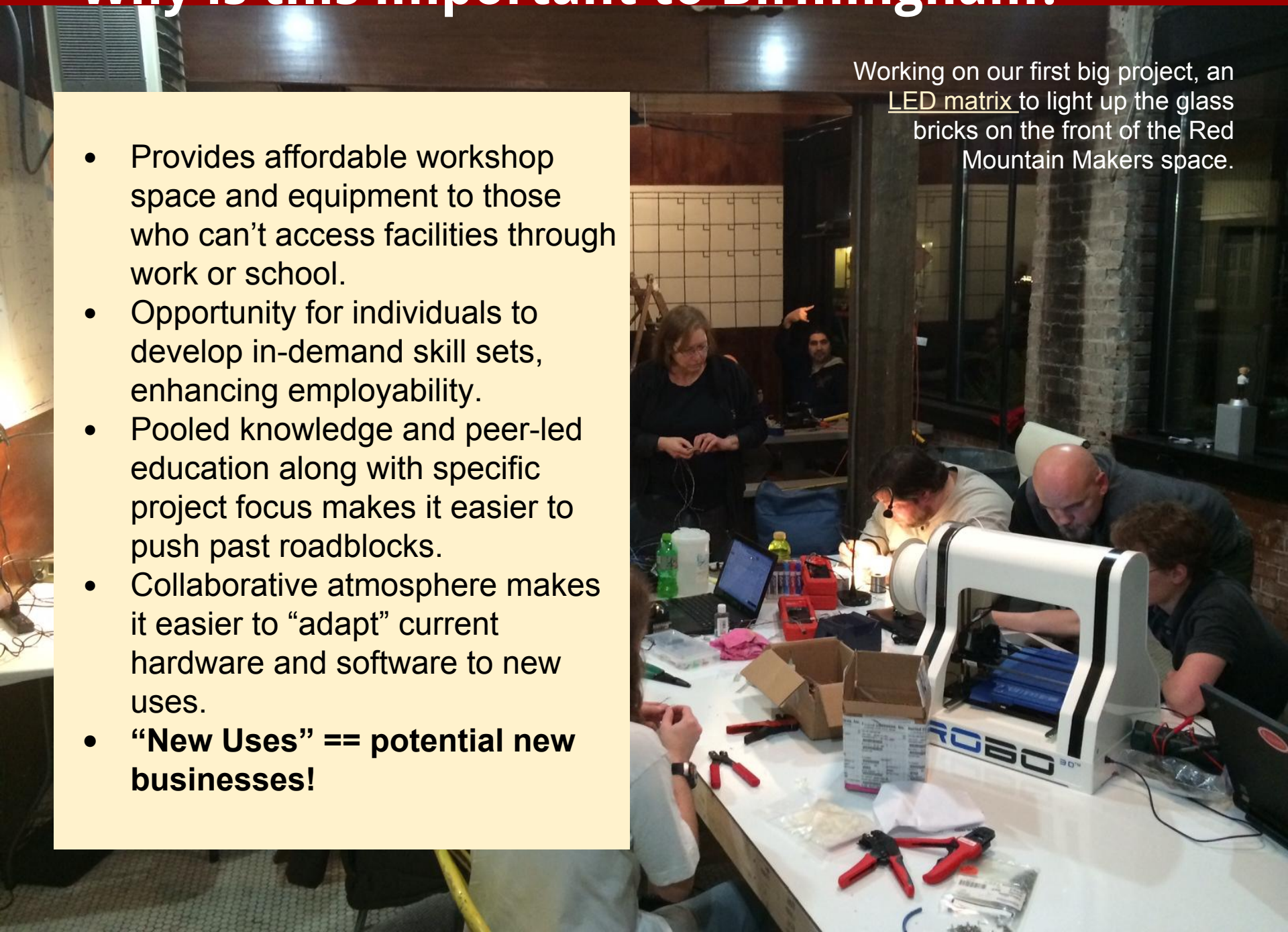
Other types of shared spaces

- Incubators - Innovation Depot
- Coworking - SocialVenture
- Makerspaces - Red Mountain Makers
- Commercial - TechShop
- Fablabs
- Repair cafes

Birmingham's Innovation Depot
Photo - Shirley Hicks

Why is this important to Birmingham?

- Provides affordable workshop space and equipment to those who can't access facilities through work or school.
- Opportunity for individuals to develop in-demand skill sets, enhancing employability.
- Pooled knowledge and peer-led education along with specific project focus makes it easier to push past roadblocks.
- Collaborative atmosphere makes it easier to "adapt" current hardware and software to new uses.
- **"New Uses" == potential new businesses!**



Working on our first big project, an LED matrix to light up the glass bricks on the front of the Red Mountain Makers space.

Red Mountain Makers Timeline

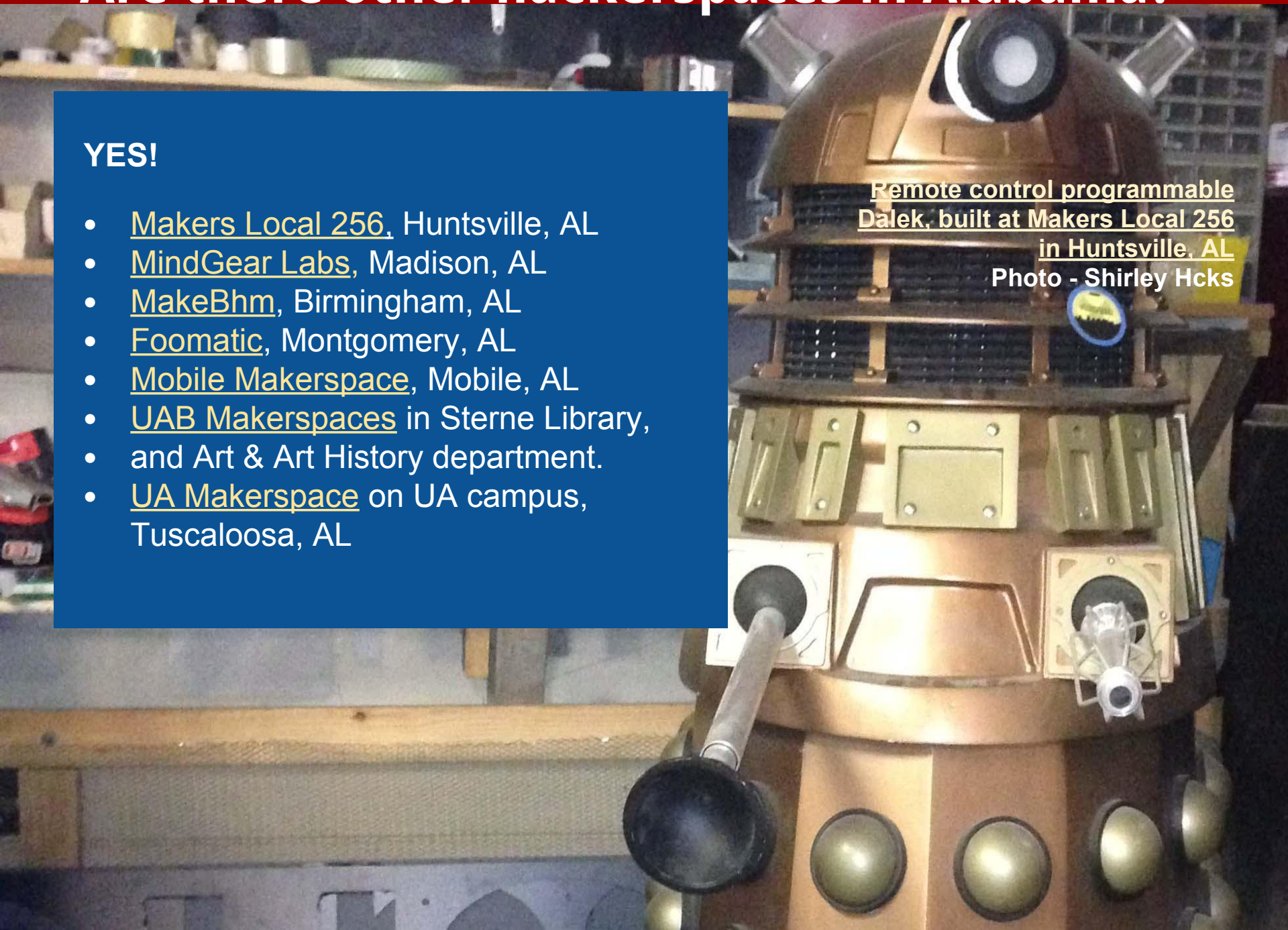
- First meeting at the Urban Standard coffee house - March 2012.
- While incorporating as a non-profit, met at members' homes & the Bottletree Cafe.
- Built spud guns, did some workshops, worked with Arduino boards.
- Started space search June 2013.
- Found a suitable space by August.
- October 2013 - moved the workshop in and started renovating.
- November - started the LED brick matrix project shown here.
- Shape, Computer and Fiber labs complete - Circuit, Metal and Ceramics under construction.
- Held first classes fall 2015.

Image credit: Melissa, http://www.onboardthegravytrain.com

Are there other hackerspaces in Alabama?

YES!

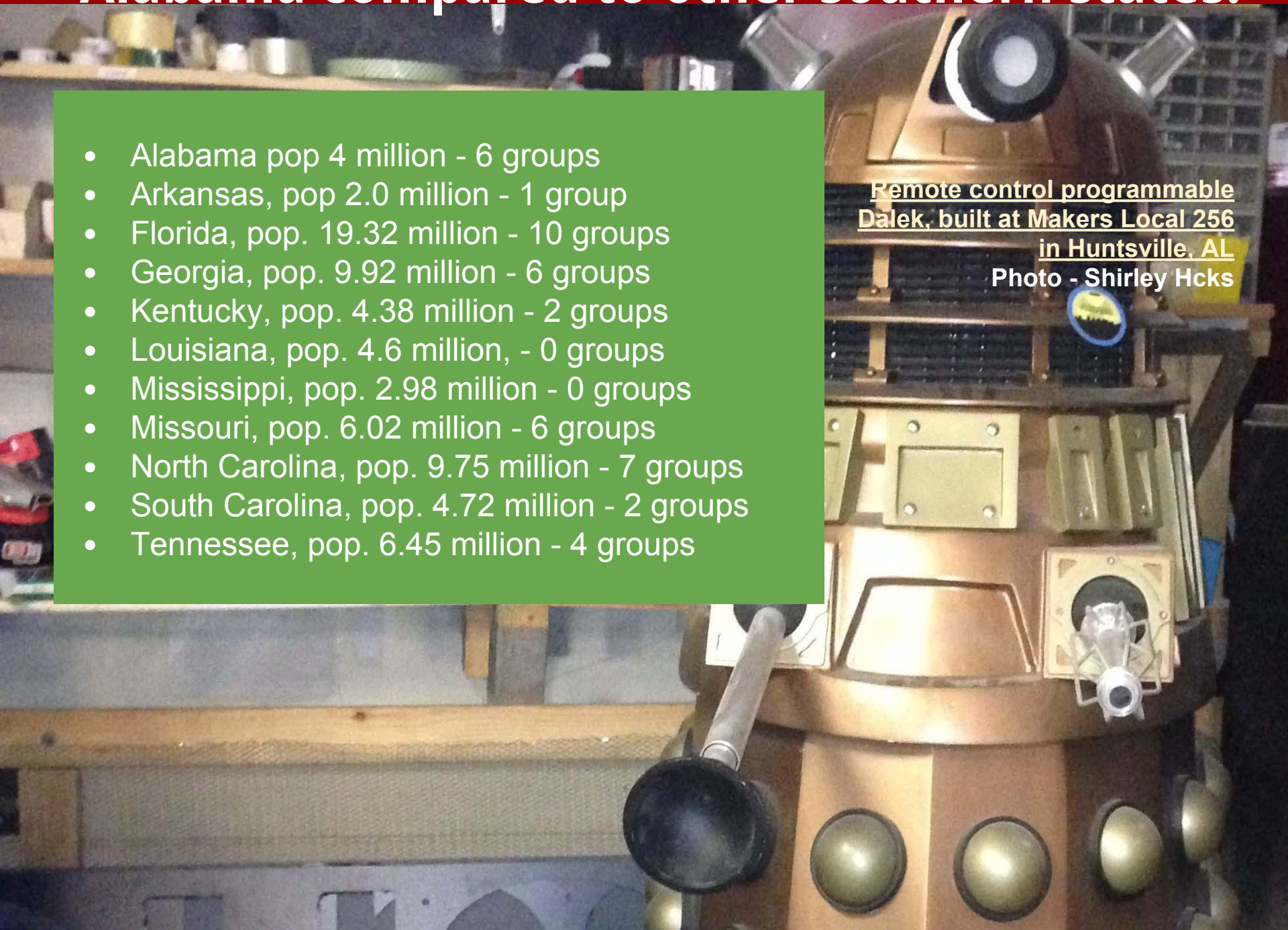
- Makers Local 256, Huntsville, AL
- MindGear Labs, Madison, AL
- MakeBhm, Birmingham, AL
- Foomatic, Montgomery, AL
- Mobile Makerspace, Mobile, AL
- UAB Makerspaces in Sterne Library,
- and Art & Art History department.
- UA Makerspace on UA campus, Tuscaloosa, AL



Remote control programmable Dalek, built at Makers Local 256 in Huntsville, AL
Photo - Shirley Hcks

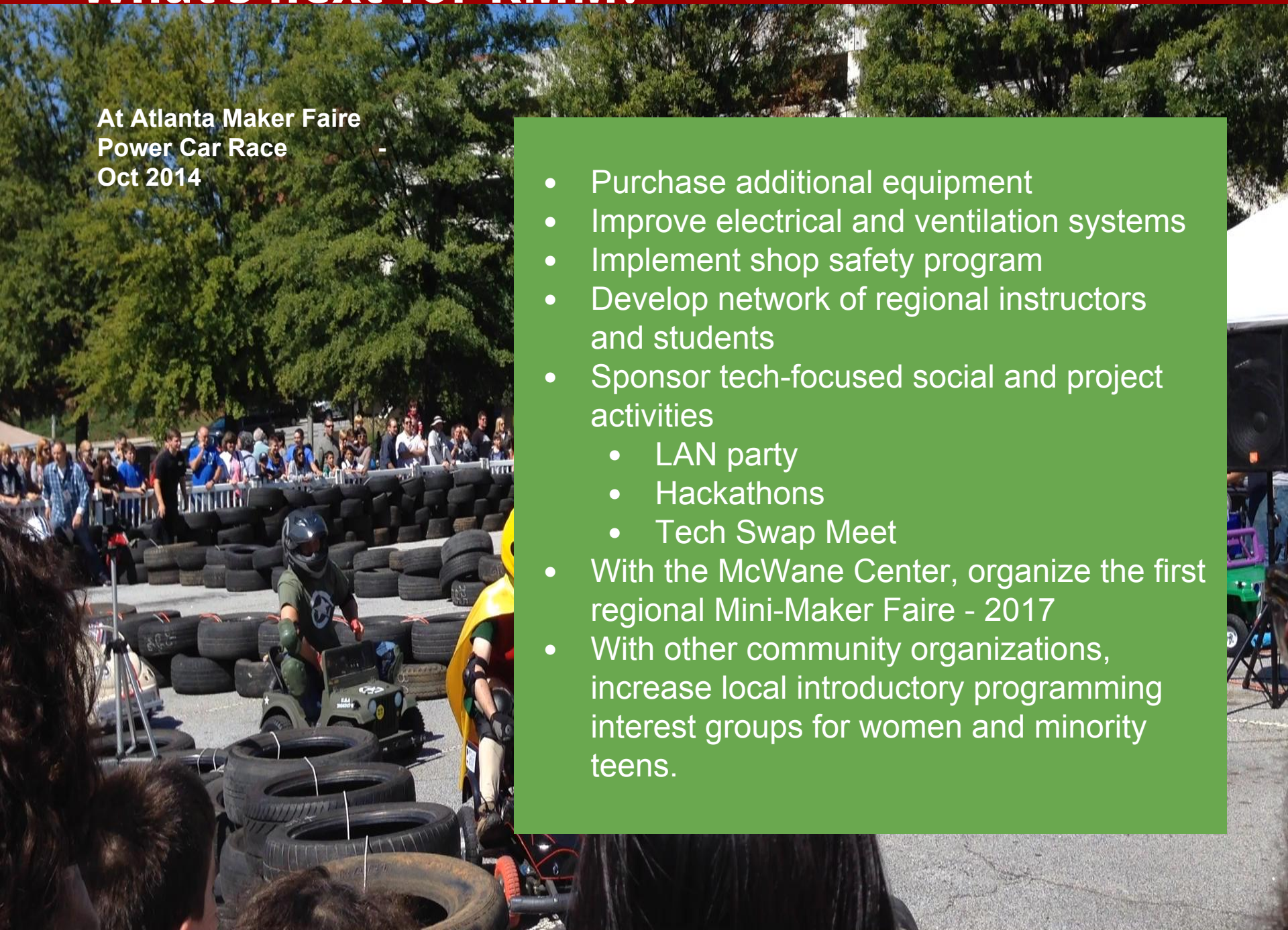
Alabama compared to other southern states:

- Alabama pop 4 million - 6 groups
- Arkansas, pop 2.0 million - 1 group
- Florida, pop. 19.32 million - 10 groups
- Georgia, pop. 9.92 million - 6 groups
- Kentucky, pop. 4.38 million - 2 groups
- Louisiana, pop. 4.6 million, - 0 groups
- Mississippi, pop. 2.98 million - 0 groups
- Missouri, pop. 6.02 million - 6 groups
- North Carolina, pop. 9.75 million - 7 groups
- South Carolina, pop. 4.72 million - 2 groups
- Tennessee, pop. 6.45 million - 4 groups



Remote control programmable Dalek, built at Makers Local 256 in Huntsville, AL
Photo - Shirley Hcks

What's next for RMM?

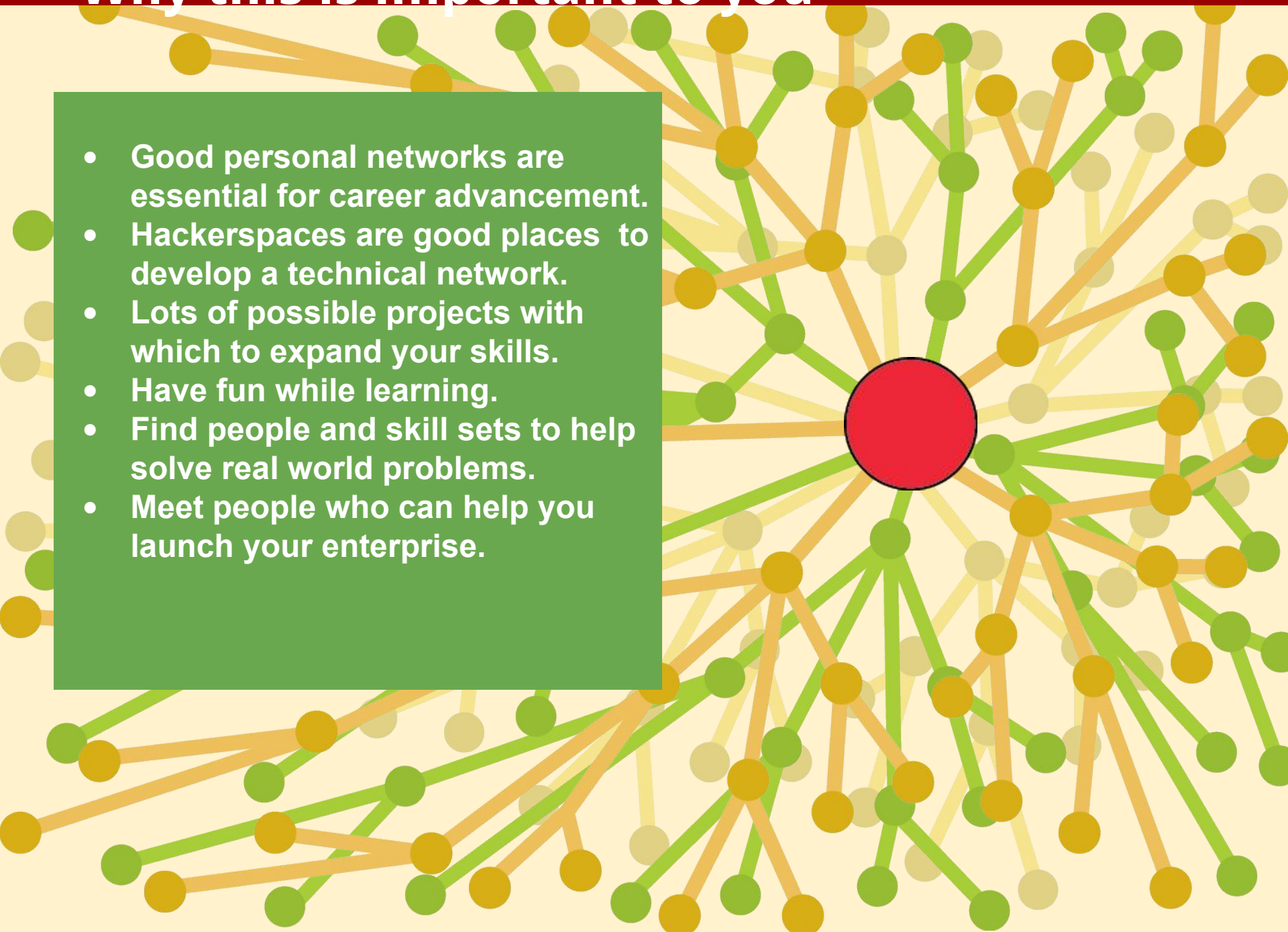


At Atlanta Maker Faire Power Car Race - Oct 2014

- Purchase additional equipment
- Improve electrical and ventilation systems
- Implement shop safety program
- Develop network of regional instructors and students
- Sponsor tech-focused social and project activities
  - LAN party
  - Hackathons
  - Tech Swap Meet
- With the McWane Center, organize the first regional Mini-Maker Faire - 2017
- With other community organizations, increase local introductory programming interest groups for women and minority teens.

Why this is important to you

- Good personal networks are essential for career advancement.
- Hackerspaces are good places to develop a technical network.
- Lots of possible projects with which to expand your skills.
- Have fun while learning.
- Find people and skill sets to help solve real world problems.
- Meet people who can help you launch your enterprise.



RED MOUNTAIN MAKERS

Red Mountain Makers location
Photo - Shirley Hicks

@Woodrow Hall, 5502 1st Avenue N.

- Workshop, with tools
  - CNC cutter
  - Metal lathe
- 3D printer
- Circuits Lab (electronics)
- **NEW!** Fiber Lab
- **NEW!** Computer Lab
- **NEW!** Member on-site storage
- Technical library
- High speed wifi & internet
- Meeting & work room
- Office facilities

Within next 3-4 months:

- Paint room

www.redmountainmakers.org

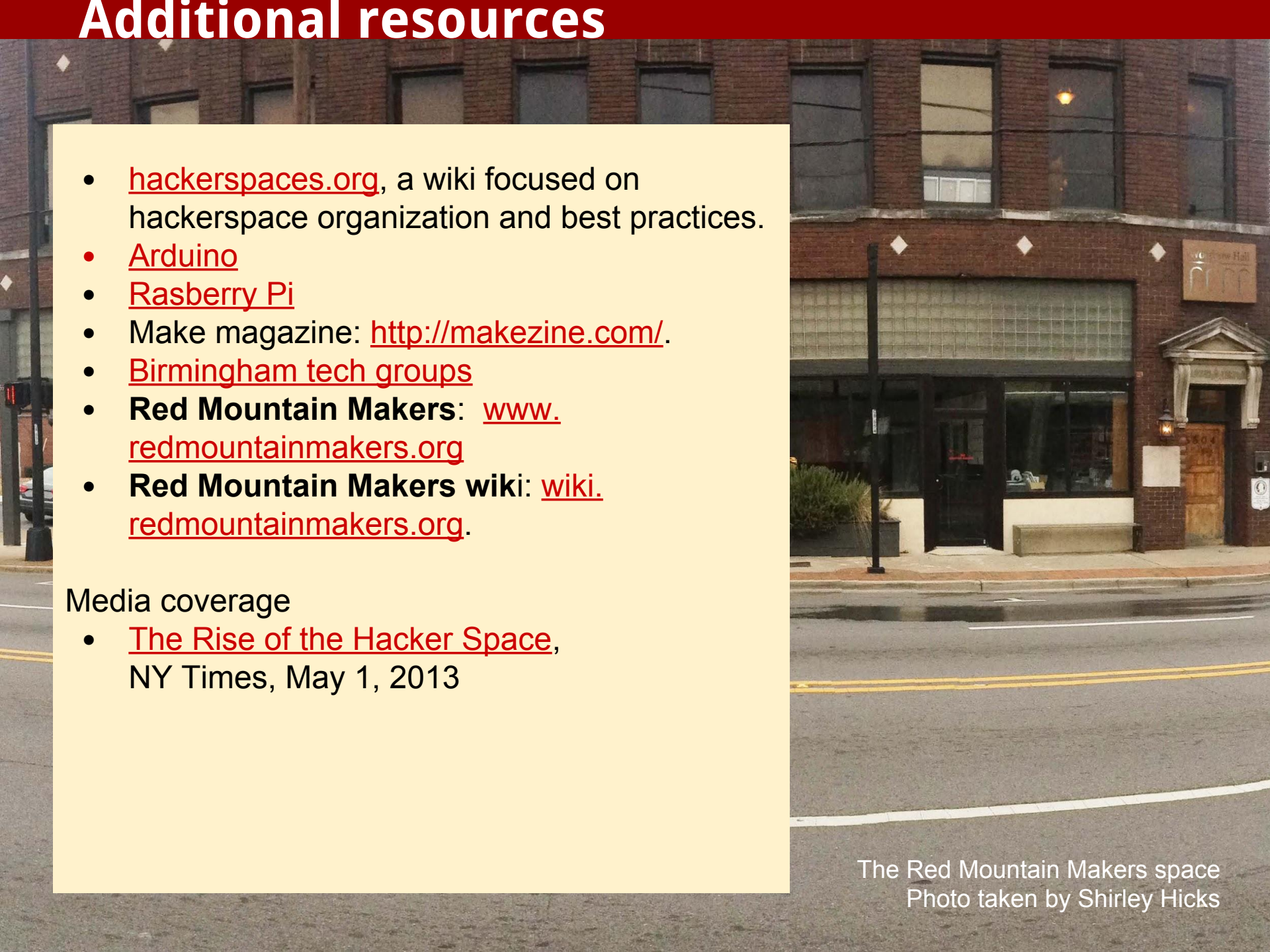
Meetup.com: Red Mountain Makers
Facebook: Red Mountain Makers
Twitter: RedMountainMake

Additional resources

- hackerspaces.org, a wiki focused on hackerspace organization and best practices.
- Arduino
- Rasberry Pi
- Make magazine: http://makezine.com/.
- Birmingham tech groups
- **Red Mountain Makers**: www.redmountainmakers.org
- **Red Mountain Makers wiki**: wiki.redmountainmakers.org.

Media coverage

- The Rise of the Hacker Space, NY Times, May 1, 2013



The Red Mountain Makers space
Photo taken by Shirley Hicks