

## Senior Project Ideas

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### 1. *Spirograph display*

See the ASEE paper MAKER: Spirograph-Style Drawing Machine Controlled by Arduino  
Dr. Clark Hochgraf, Rochester Institute of Technology. Uses a pantograph like mechanism to draw unusual sketches.

### 2. *KiloBot*

See the ASEE paper MAKER: A Kilobot Swarm

Mr. Nathan Tyler Thomas, Dr. Yanjun Yan, Dr. Hugh Jack, Western Carolina University.  
Creates many small robots, each of which is about 1.25" on a side that run with a coin cell battery and two small vibrators.

### 3. *Seismograph Demo*

This is a demo seismograph for use open house or for an active display in a children's museum. The idea to build a seismograph that displays and can print vibrations such as jumping up and down, heavy walking, or, of course, earthquakes. Data should be displayed in real time on a computer screen with an option to recover and print past data. Ultra low frequency microphones are available for about \$50/each which can be used as sensors.

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### 4. *Museum/Open House Display*

Create a durable interactive display an electrical/computer concept that would be suitable for a museum or an open house. The display may include some electrical instruments but should otherwise be portable by a single person. The typical audience will be high school students. Safety and reliability are of critical importance. Sample ideas include creating an interactive electric circuit, solar panel, seismometer, sound on a light wave, or fountain.

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### 5. *Stair climbing robot*

Build a robot platform that can carry a 1 pound package up the lobby stairs in Koch Center.

See: <http://makezine.com/2015/05/01/meet-stair-bear-adorable-climbing-robot/>

This could be a two-person project depending on specifications.

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### 6. *Egg writer*

Build a device that can write on an egg. See photos. This device spins an egg under a felt-tipped pen that moves in an arc. Your device should provide a mechanism to use multiple colors on the same egg.

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