

Questions on Kinetic/Electronic/Sensor Art Projects - Version 2.0



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In making kinetic art (art that has motion) or art that has any electronics or sensors embedded in it, there are a few questions you should ask yourself, and anyone who is helping you build your project. Feel free to send me additions to this list, and pass it on (with attribution).

- 1) **Better, cheaper, faster - pick only two!** You must figure out what is important to you; aesthetics, 'wow factor', reliability, etc. You can't have it all. What exactly it is you want to do? Remember that *quality is remembered long after the price is forgotten*. If you use cheap materials, connectors, and the like, things may break at the most inopportune times. Time and time again, in discussions with many colleagues, and on many projects, the small things, especially connectors, can be the downfall of many a system.
- 2) **Who will be building this?** You, or will you outsource it? Do you need to know how this works? Will you be "tweaking" it yourself?
- 3) **Who will maintain it?** Will this be in a gallery, where you have access to fix things? Will the people who will maintain it, turn it on and off, have any technical skills appropriate to the project?
- 4) **What is the size of the piece?** Can it be moved easily? Can you move it in parts? Are there any odd sized, sharp, or heavy elements? Are any elements delicate?
- 5) **When do you want it done?** Having a schedule is critical if you need help, or need parts.
- 6) **Where will this be set up?** Will this be a piece that is permanent, or temporary? For how long will it be in place? Do you need attachments to walls, the ceiling? Will it be shipped anywhere? Who will assemble it?
- 7) **How will it be built?** Will this be glued together, or machined from solid aluminum? Will you be outsourcing this, or building all yourself? How much will this weigh, and how will you transport the piece?

8) **What sort of environment will you be in?** Where will it live? In a covered atrium, outside all year-round, inside an office, or on a roof? Will it be exposed to the public in a way that will attract vandals, or people who will want to play with it? Are there any issues with temperature, humidity, wind? Near the ocean? What about local lighting? Can it (or will it) be solar powered? If so, how long can it operate without solar input?

9) **Will it be safe?** If you are using 120 VAC motors (standard household voltage), this may be an issue. Will there be any moving parts with pinch points? Will the piece be behind a shield, wall, or window? Will gallery staff be on hand to monitor people interacting with it? Will it produce loud noises, sparks, or high temperatures?

10) **How much noise can this make?** Will the sound of switches or relays be distracting from the piece? If you are using pneumatics, will an air pump be OK?

11) **Think about how the public will interact with the piece.** If it is a truly interactive piece, you will need beta testers, and people who will attempt to 'break' your nice piece of art. Will kids or adults be interacting with it? If there are controls, they will need to be 'bulletproof' so that things can't be busted by overenthusiastic patrons.

12) **Aesthetics - how will the piece look?** Are there any critical dimensions, colors, or special details about the piece? Will the wiring be exposed? Can you even accept wires (wireless options are available for some sensors and the like)? Will the controls/wires be part of the aesthetic? If so, you should see what these pieces will look like. Otherwise, you will have to cover up or hide the mechanical parts. Note that most electronics need some sort of cooling, if any heavy currents are handled.

13) **Can you power the piece?** With regard to the location of the piece, check to see if there is enough power (if AC powered). If it is to go overseas, check that you have the right cabling and power connectors. Also note that having correctly grounded outlets (for AC systems) is critical for safety.

14) **Details on the guts of the piece** - If you are using electronics make sure you have a wiring diagram, or at least a system diagram and a hardcopy of the instructions nearby the piece, or attached to it. The use of exotic, extremely cheap, or extremely unique parts may cause problems if you need to fix things in the field. Design with the ability for it to be disassembled and debugged in the field. For this reason, things like the Arduino, although simple, may be better than more exotic setups. Make sure contact info (email, phone number) is on the piece.

15) **Special considerations** - Will the piece require vision, a constant flow of water, human presence detection, heating, cooling, special effects, lasers?