Summary:

This activity is designed to familiarize students with the physical appearance of a variety of electronic circuit components and to acquaint them with the precautions that must be observed to prevent static electricity from damaging sensitive components.

Expected Outcomes:

Students will learn to relate circuit symbols and part designations to actual components, read the value coding on components and become comfortable with anti-static handling procedures.

Materials

Each student should have the following materials and tools:
(*) indicates provided by LaACES

1. *A *SkeeterSat* kit
2. Printed copies of the *SkeeterSat* circuit diagram, parts list, and circuit board layout
3. Paper, pens & pencils, highlighter pen, tape
4. Plastic "shoebox" or other container to store materials and supplies
5. Small hand magnifier (optional, but very useful for small parts)

The laboratory should also be equipped with the following:

1. Flat worktables sufficient to seat all students with plenty of workspace
2. Anti-static mats and grounding straps (recommended, but not absolutely required)
3. Computer(s) with internet access.

Procedure:

Each student should perform the inventory activity individually. We emphasize anti-static measures by either occasional "touch grounding" or use of mats and straps. Also, keep devices on the anti-static foam as required. The color code for resistors ought to be committed to memory but check if any student is color blind before starting this activity.

1. Distribute the ***SkeeterSat*** kits and printed documentation. The complete ***SkeeterSat*** manual may be distributed at this time, or optionally, just the diagrams and parts list. Students should be instructed not to open the antistatic parts envelopes yet.
2. If used, students should put on anti-static straps and connect them and the mats to a grounded conductor. If mats and straps are not used, students should touch a grounded metal object (such as the metal case of a computer or other AC line operated apparatus)
3. Students may now open the parts envelopes and empty the parts onto the work surface. If anti-static mats are not used, a paper plate is a good option to keep parts corralled.

Any parts that are supplied on pieces of anti-static foam should NOT be removed from the foam.

4. Students should locate a part using the parts list and then find the corresponding physical component. Students should then tape the component to a sheet of paper and identify it writing down the circuit designator, type of component, and value, *i.e.*, **C3**, **ceramic disk capacitor, 0.001 µF**.
5. As students identify each component, they should locate the corresponding symbol on their schematic and mark it off, use of a highlighter is recommended.
6. NOTE: R2 listed as TBD is not actually used
7. Upon completion, parts may be stored still taped to their paper sheet in the project box in preparation for *SkeeterSat* schematic study and assembly in subsequent activities.