



Leaves of Brass

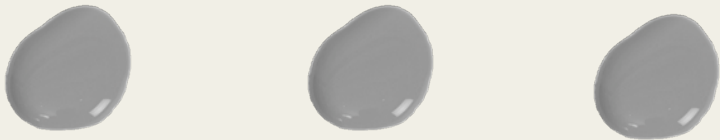
A study of how conductive materials behave on leaves

Fawn Qiu | 10. 2011

Conductive ink was drawn on a piece of leaf to create an electrical circuit

🍁 Silver ink painted using a stick was the most effective

🍁 Pen and brushes were less effective due to lack of precision and roughness



Each circuit was then copper-plated separately



Time in copper bath determined the color of copper plates

3 minutes in bath -> dull copper color

>10 minutes in bath -> bright copper color



Plating surface determines level of adhesiveness of the copper

Copper on the stem adhered well

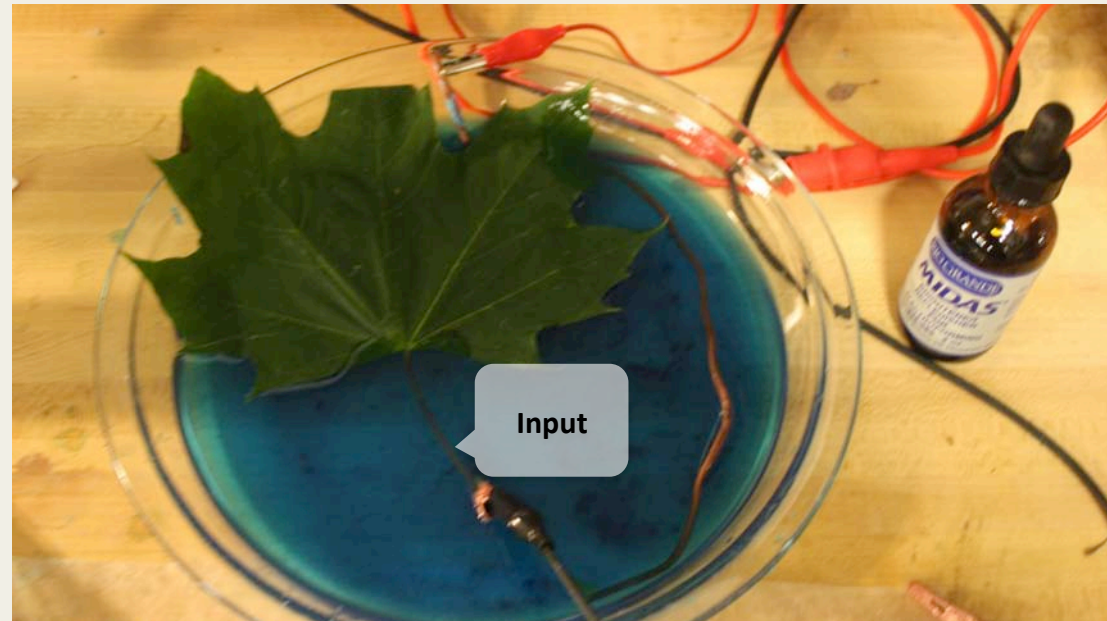
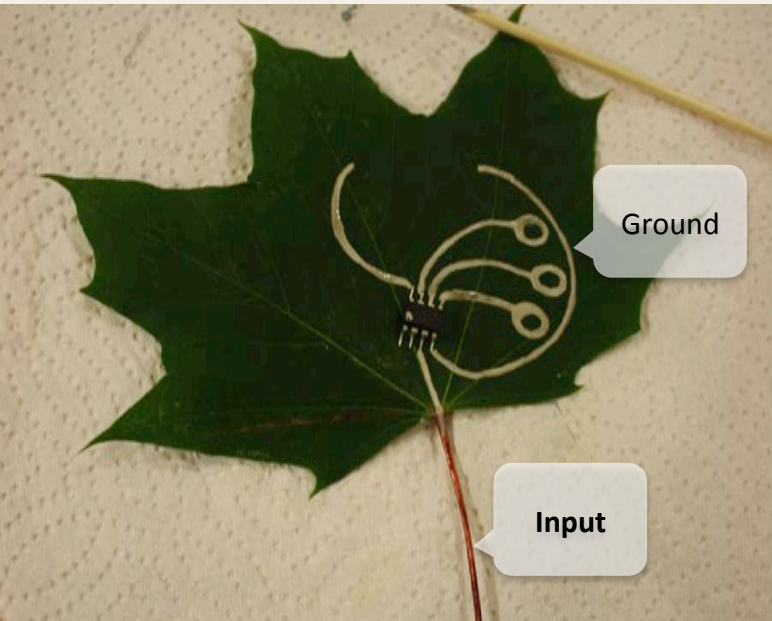
Copper on the leaf was fragile and broke off easily (it was glued back)




Silver ink was more conductive than copper, although measurements fluctuated significantly

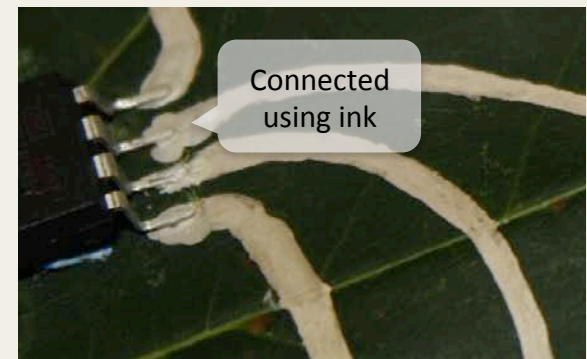
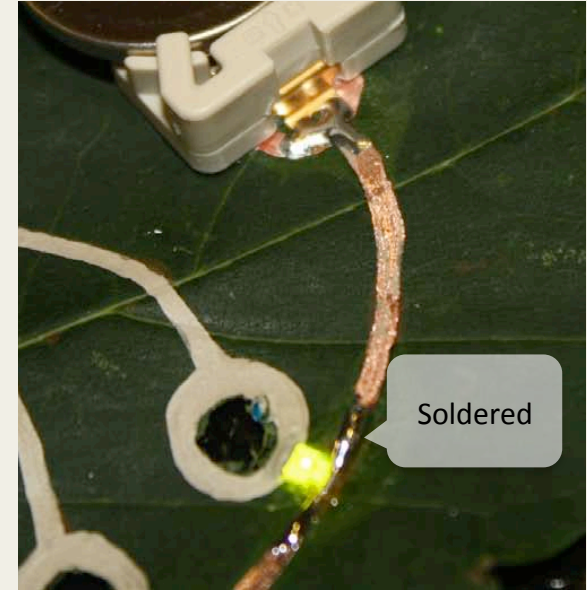
Silver resistance: 0-0.1 Ohm

Copper resistance: 0.2-0.3 Ohm

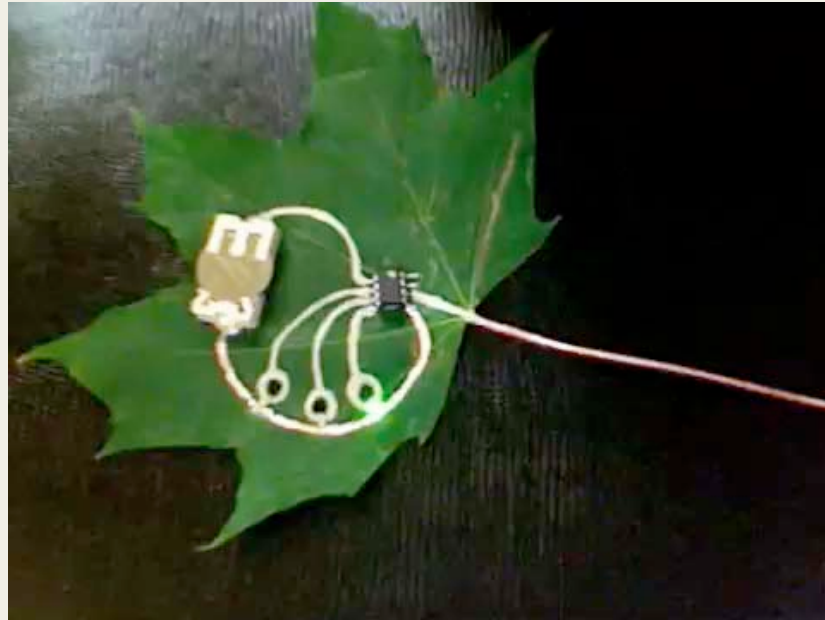


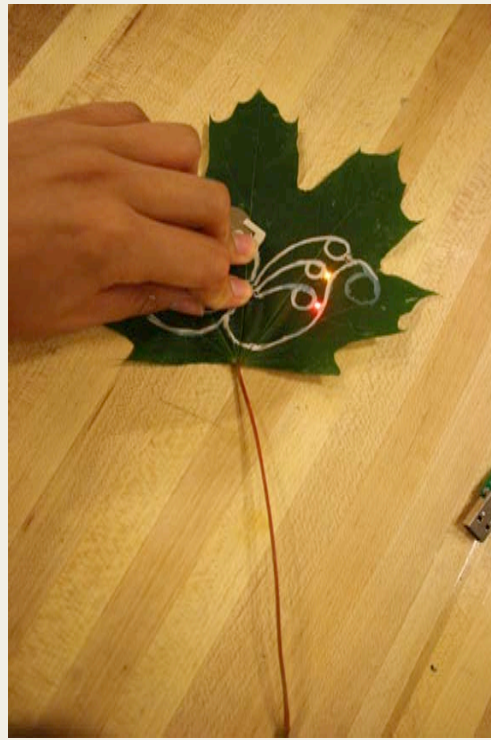
Microcontroller and battery were connected to the circuit through soldering and conductive ink

 Soldering provided a stronger bond than conductive ink and glue especially due to the slippery surface of the leaf



The circuit is connected; touching the input (the stem) turns lights on and off





Challenges

- 🍁 Fresh leaves were difficult to work on
- 🍁 Soldering provided better connection than ink alone
- 🍁 Conductors would've adhered better if the leaf was dry
- 🍁 Conductive string could be a substitute of ink, but it broke the leaf easily; coated string was more difficult to work with



Potential Applications – interactive tree installation