

## Final Summary Report

The device I selected to disassemble was a Texas Instruments-30xIIS calculator. My reasoning behind this is that it is a relatively inexpensive device that is an easy to deconstruct and research, and is still as valuable as any other device to learning the components of a electronic gadget. When I disassembled the calculator, I found a plethora of different components inside, including a LCD (liquid crystal display), a 3 volt lithium battery, a small solar panel, transistors, a circuit board, and touch activated electrical circuits for the buttons, among other things. All of these elements together created an integrated circuit, which is colloquially called a “chip”. The most interesting subsystem, in my opinion, is the series of the touch activated electrical circuits. When a button on the calculator is pressed, it completes a circuit that sends an electrical charge into the transistors. Transistors are what allows the calculator to have computing power. The more transistors there are, the greater the capability. Transistors work when activated by an electrical impulse, changing from a 0 to a 1 and then rapidly back. This then turns the information into whatever function the user desires. Supporting both of the previous components is the circuit board, which is made from sheets of copper pressed together and engraved with conducive wires to activate the other subsystems. For us to be able to comprehend this information, an LCD display, a complex system that uses the components of both liquids and crystals to display static information, is used. Powering this entire operation is a 3 volt lithium battery, which is in turn maintained by a solar panel pasted to the outside of the calculator. From this experiment I have gained valuable insight on the intricacies of electronic devices, and moving forwards I will be more capable of recognizing and fixing gadgets when they fail to work properly. This will also benefit me in my robotics endeavors immensely, as I have greater knowledge of how and why things work.



