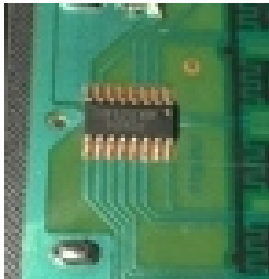


Insignia brand NS-RC6NA-14 TV remote controller.

The NS-14 was decided upon for this essay as it is an advanced household tool that is bound to have several electronic components inside. The remote has been unused for years by now, so it is not too important to keep around.

Section 1: The xls2816ac-350 integrated circuit:



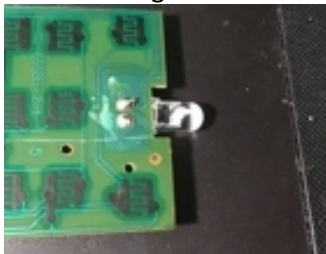
The integrated circuit is a set of conductive wires and a silicon chip made with the purpose of interpreting electrical signals and creating an output, these are made with mass-manufacturing in mind and thus are made cheaply. The integrated circuit inside the remote senses which buttons are pressed by seeing what wires are active, as the main circuit works by activating and de-activating wires according to what buttons are pushed. The integrated circuit interprets the signals and then releases a binary signal which is sent to the LED. The small size, computing power, and low energy cost make it one of the most widely used electronic components on earth. Sources:

<https://www.britannica.com/technology/integrated-circuit>, <http://www.madehow.com/Volume-2/Integrated-Circuit.html>

Section 2: the main circuit: The main circuit board is a thin piece of fiber glass that has small copper



wires printed onto its surface area. Cables and circuits are printed on the board for easy manufacturing and cost. Energy that is provided by the batteries flows to the circuits and get stopped by a gap in-between the main circuit board and the integrated circuit board. The buttons on the controller bridge the gap when pressed, this allows a full circuit to be created allowing the signal to be transferred into the integrated circuit. Sources: <https://www.printedcircuits.com/printed-circuits-materials/>



Section 3: The Infrared LED (This had no markings to signify name, but most resembles the Ever-light IR333-A):

The LED light on the remote is an infrared or (IR for short) LED. These remotes send codes from the remote itself to the device it is paired to by flashing the binary signals it receives from the integrated

circuit in IR radiation. The signals it transmits are picked up by the device it is paired to with IR sensor. Once the device picks up the signal, it carries out the request. Sources:

<https://learn.sparkfun.com/tutorials/ir-communication/all>

<https://electronics.howstuffworks.com/remote-control1.htm>

#### Section 4: The Adafruit 4700uF 10v electronic capacitor



A capacitor is a tool that shops electric energy in an electric powered field. Capacitors are very widely used amongst many applications like digital circuits, energy circuits, and energy deliver units. A capacitor is fashioned from an insulator and metallic plates which are connected on both facets of the insulator. The insulators don't convey any current. While the energy is flowing, the positive and negative charges are transferred in the conductor so the capacitor can keep electricity among the metallic plates. The capacitor allows the remote to work because the capacitors keep electric charge in an electrostatic field, and provide this electricity to the circuit, whilst necessary so the remote can work efficiently and effectively. Source: [https://www.electronics-tutorials.ws/capacitor/cap\\_1.html](https://www.electronics-tutorials.ws/capacitor/cap_1.html)

In this experiment, I learned how TV remotes send a signal, what a capacitor does, and the adaptability of an integrated circuit.