Remote Control Analysis

We disassembled a Denon Rc-1227 T.V. Remote. Upon approaching the remote, we discovered a common access port, the battery port. A single screw held the case together, making it relatively simple to take apart. The case, however, required much more effort to pry open. Sealed together by a thin plastic ridge, the case split with a flat head screwdriver and a hammer. Four main components laid inside.

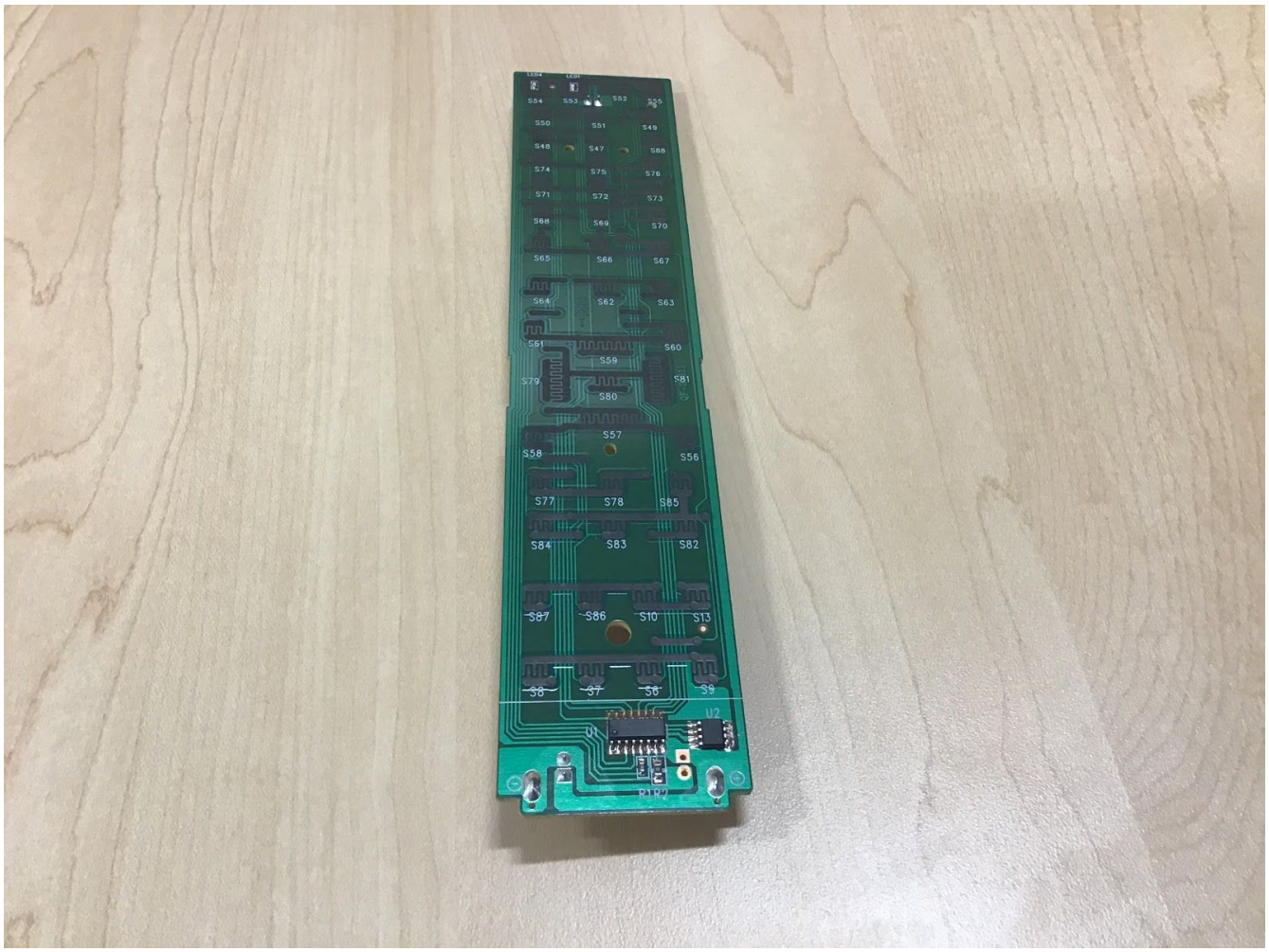
Upon splitting the case, the other two components sandwiched inside were the membrane, a silicone-structured membrane which made up the physical buttons, as well as the motherboard, which had circuit buttons on a very thin printed circuit board (PCB). These are all of the components of a simple T.V. remote, however, there are several sub-components that contribute to the function specific to this remote.

The main function of the remote comes from the motherboard, which has two integrated control units (ICUs) found near the bottom. The ICU can detect when a control button is pressed and translates it into code specific to the pressed button.

The actuator for the circuit is the button membrane. The entire entity is made of a silicone compound with the buttons being more densely packed than the membrane itself. On the bottom of each button lies a conductive contact, which completes part of the parallel circuit on the motherboard, leading to a signal being produced to the receiver on the T.V.

Other components include the resistors, a capacitor, two light-emitting diodes (LEDs), an infra-red light, and a power source (batteries). Finally, the plastic case holds these components together, as well as protecting them. It is a flimsy plastic with a lined textured plastic on the top, perforated piece.

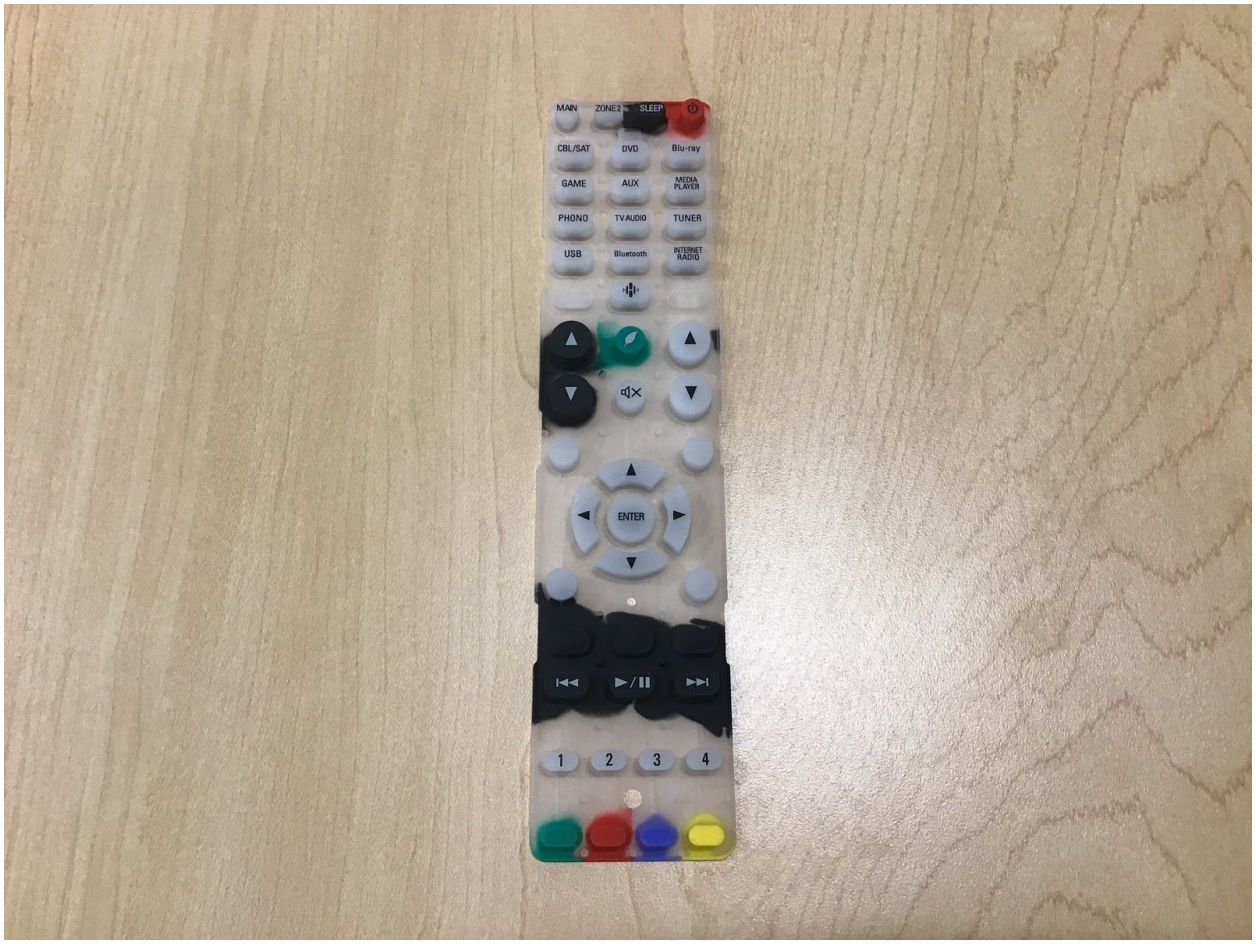
After completing this challenge, we learned more about how a T.V. remote works and it gave us a better understanding about how the system works.



Printed circuit board with the ICUs and button contacts

Bottom of the circuit board

with the LED and capacitor.



Remote button membrane.

Plastic Casing and battery

cover