Keyboard breaking break

Goals

The goal of this exercise is to stretch your making skills in two ways:

1. Taking something apart without instructions (hopefully without breaking it)
2. Figuring out how something works by observing it carefully

For this reason, it's best if you don't go looking for answers online. We're trying to stretch your making skills, not your looking-things-up-on-the-internet skills. You will receive full credit as long as you put effort into the assignment.

In class

1. You should have:

- A keyboard
- One or two screwdrivers
- A large ziploc bag to put any loose pieces in

2. Take your keyboard apart. Try not to break anything; you should be able to put it back together when you're done. If you're afraid you're about to crack something, ask a TA.

3. By looking at the keyboard, try to figure out how it works. Specifically, see if you can answer the following questions:

- How does the keyboard sense that a key has been pressed?
- There are roughly 100 keys, but there are only twenty or thirty wires going from the keys to a microcontroller. How does the microcontroller read over 100 keys with only 20-30 wires?
- There are only four wires coming out of the keyboard. How does the keyboard tell the computer which keys are pressed using only four wires?

4. Take some pictures of the things that seem important to document what you find.

Report

By tomorrow (Tuesday 7/18) night at 11:59pm, your team should submit on Gradescope a very brief report (not more than 2 pages, including pictures) describing the following:

- What you had to do to get your keyboard apart
- Show a picture of any internal circuitry, and label any parts that you recognize
- Your answers for the three questions in part 3, above.

Feel free to include pictures or diagrams to explain what you've discovered or figured out.