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Project Design Specification

Executive Summary:

      A programmable macropad which allows a user to input various shortcuts on a computer. Example functionality would be copy/paste, screenshot shortcuts, or quickly opening programs. Many user operations could be simplified to a single key press.. This functionality is especially useful for content creators, productivity applications or gamers. Being able to quickly access software features, play/pause music, or open various applications, etc. can significantly improve the user experience on computers.

Brief Market Analysis:

      This product is intended for desktop and laptop users. They are the main customers that would use and benefit from this product. Our competitors are keyboard manufactures that offer small form factor keyboards or macropads. Our product differs from other manufacturers as it's more user friendly and easier to repair (if there's any problem with it). We believe we can charge about $30-40 per macropad.

Requirements:
- The project shall interface with a PC over USB.
- The project shall be programmable for shortcuts.
- The project shall have a rigid casing around the pcb.
- The project shall have at least 3 mechanical switches.
- The project may have a display.
- The project may have a rotary knob.
- The project may have a speaker.
- The project may have a microphone.
- The project may have RGB diodes
- The project may have a graphical interface to program keys.

System Architecture:
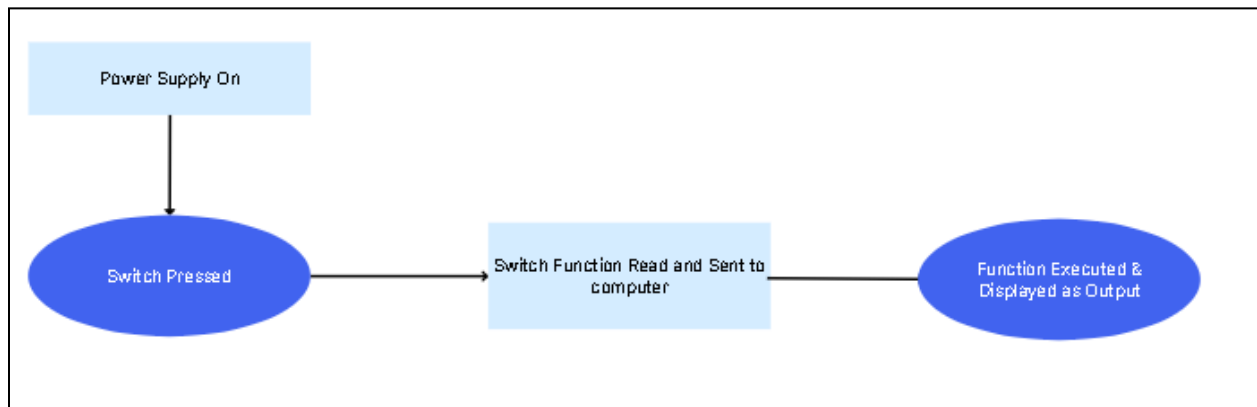
Design Specification:

- Sensors: Mechanical switches, *maybe* rotary knob
- Controller: A QMK compatible microcontroller: List of Compatible ones. Most likely will use SMT32 (as it's in stock). If ATmega32 is in stock, we will use that instead.
- Actuators: Output to computer or to display.
- Mechanical design: N/A
- Firmware: QMK firmware.
- Arduino or no: possibly using arduino board (saves the effort of needing to flash the bootloader)
- Development environment: Arduino IDE, text editor