



CALIFORNIA STATE SCIENCE FAIR 2017 PROJECT SUMMARY

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Project Title Creating a Multilingual Keyboard Utilizing LCD Screens to Aid Multilingual Typers	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our project's goal was to create a sort of multilingual keyboard to aid those who type in multiple languages, or wish to learn a new one. Our objective was to make this keyboard so that the user would not have to own multiple keyboard, memorize the locations of letters, or place stickers on a keyboard in order to type in multiple languages. Instead, a single keyboard would be used to type in any language.</p> <p>Methods/Materials To create the working prototype, there are two components: hardware and software. Our hardware consisted of an arduino and two (2) LCD-Display Switches by NKK, along with other general parts. We put everything together from soldering to placing resistors. Two pieces of software were written: we wrote a desktop program in C# that will run on the user's pc, and a second program, written in Arduino's language (based off C) that runs on the arduino. The two programs communicate with each other using serial communication via a USB cable. All software was written by ourselves, except for the arduino timer interrupt code, to which credit was given.</p> <p>Results Our result was a working prototype. The hardware included only two (2) keys ('e' and 'n'), that when pressed, typed the letters on the computer. When the computer's typing language was changed (Pressing 'Shift + Alt' or 'Windows + Space'), the LCD displays on the keys would change their displays to show the corresponding letters in the computer's new language.</p> <p>Conclusions/Discussion Since our project was only a prototype, we hope to continue development to be able to provide a full keyboard of LCD-keys. We also only have two built-in languages supported. However, our code is available online, open-source, so any developer can add on to our code.</p>	
Summary Statement We created a (prototype) keyboard, where in place of traditional keys, each key contains a LCD screen. These are used to change the keys to allow the user to type in multiple languages with ease.	
Help Received We created all code, except for timer interrupt code, gotten online by Amanda Ghassaei. We also got help soldering from my uncle. All hardware work was done ourselves, however.	