Electronic Keyboard Kit

Kit Description:

This kit will offer students the opportunity to build and modify the design of an electronic keyboard. They will have the opportunity to design the gain of an inverting amplifier, and the filter type used to modify the tone. Finally they will be able to test the effects of their decisions and decide whether or not the keyboard will be adequate for the intended purpose.

Design Problem:

A professional Pianist has contracted your company to design a small mobile piano for use on a tour bus for the composition of future pieces.

Design Variables:

Gain of Amplifier
Frequency Response of Filter: High Pass or Low Pass design, and cut-off frequency.

At the end of this activity students will be able to:

Visualize and understand the propagation of sound waves
Understand the goal and necessity of amplification
Understand how filtering and frequency content effects tone or waveform shape

Testing Methods:

Human hearing (i.e. is it “loud” enough)
Use a DB meter to measure the difference in volume
Test Performance
Depending on availability: Oscilloscope