Project Title - Theremin

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Abstract
A theremin is a musical instrument played without physical contact through measuring the distance to a player’s hands from a set of antennas. Through these controls, the player can adjust the volume and frequency of the generated note to produce music. We find the theremin to be an interesting project because it is an uncommon and fun to watch instrument that is completely made from analog electronics. The capacitive distance sensing techniques used in the theremin, which are at the core of controlling the pitch and volume of the instrument, have a wide variety of practical applications. The theremin provides an intuitive sensory experience that will allow us to understand this technique and use it in future applications.

To complete the project we plan to divide the Theremin into several functional blocks such as the pitch antenna, volume antenna, voltage controlled amplifier, voltage controlled oscillator, and power supply. These blocks can all be designed and tested in parallel by different members of our team. If we can complete these parts to make a basic theremin, we plan on trying to extend the project by doing things such as optimizing the linearity and range of the antenna controls, adding pitch visualizations to aid in tuning and playing, and built in speakers.