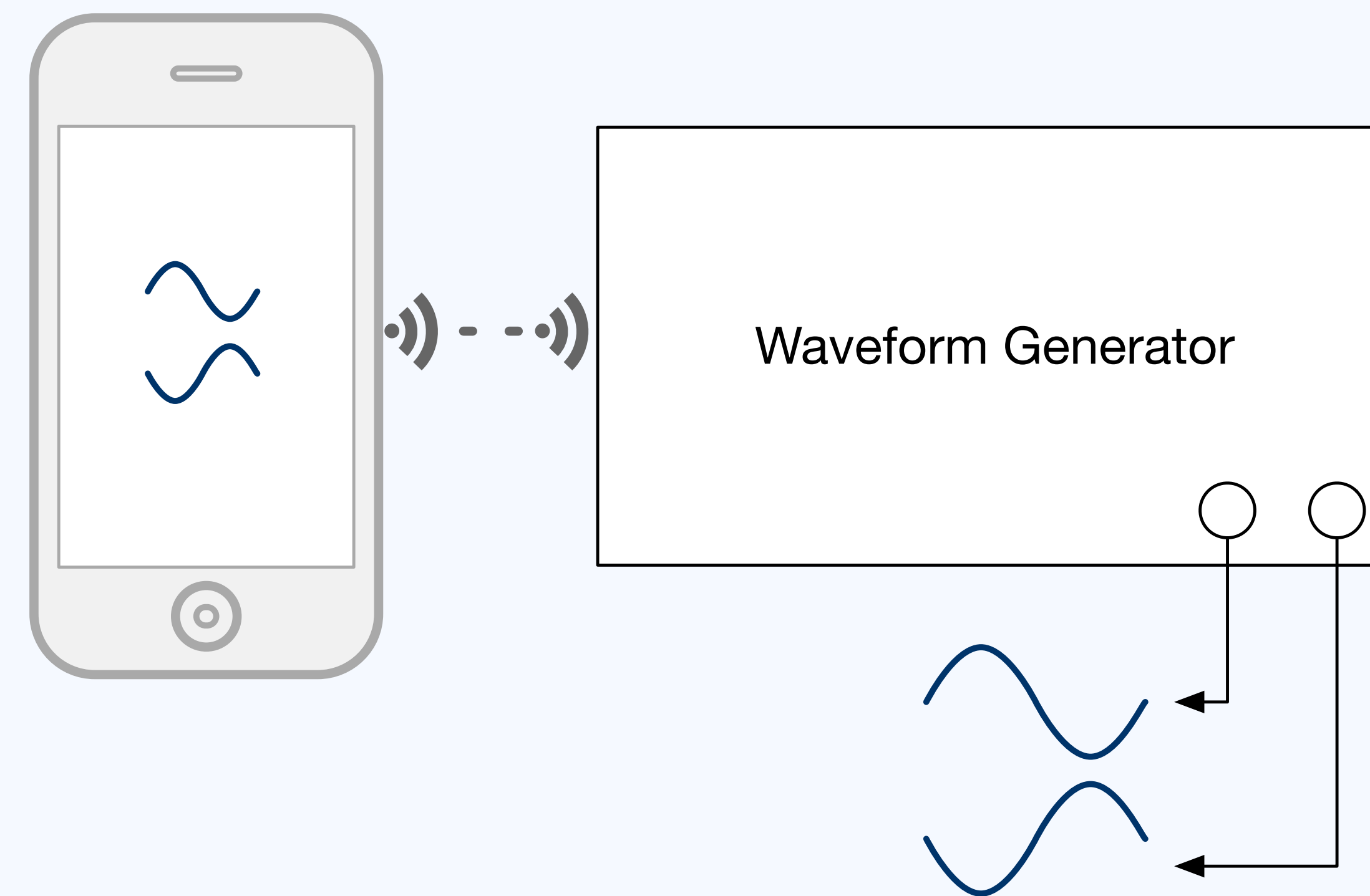


# iPhone Waveform Generator

## Project

The iPhone Waveform Generator is a dual-channel arbitrary function generator controlled by an iPhone app to provide a more accessible instrument for circuit testing.

- The app enables easy drawing and customization of the waveforms
- Waveform information is transmitted wirelessly to the waveform generator
- Two different waveforms can be generated at once

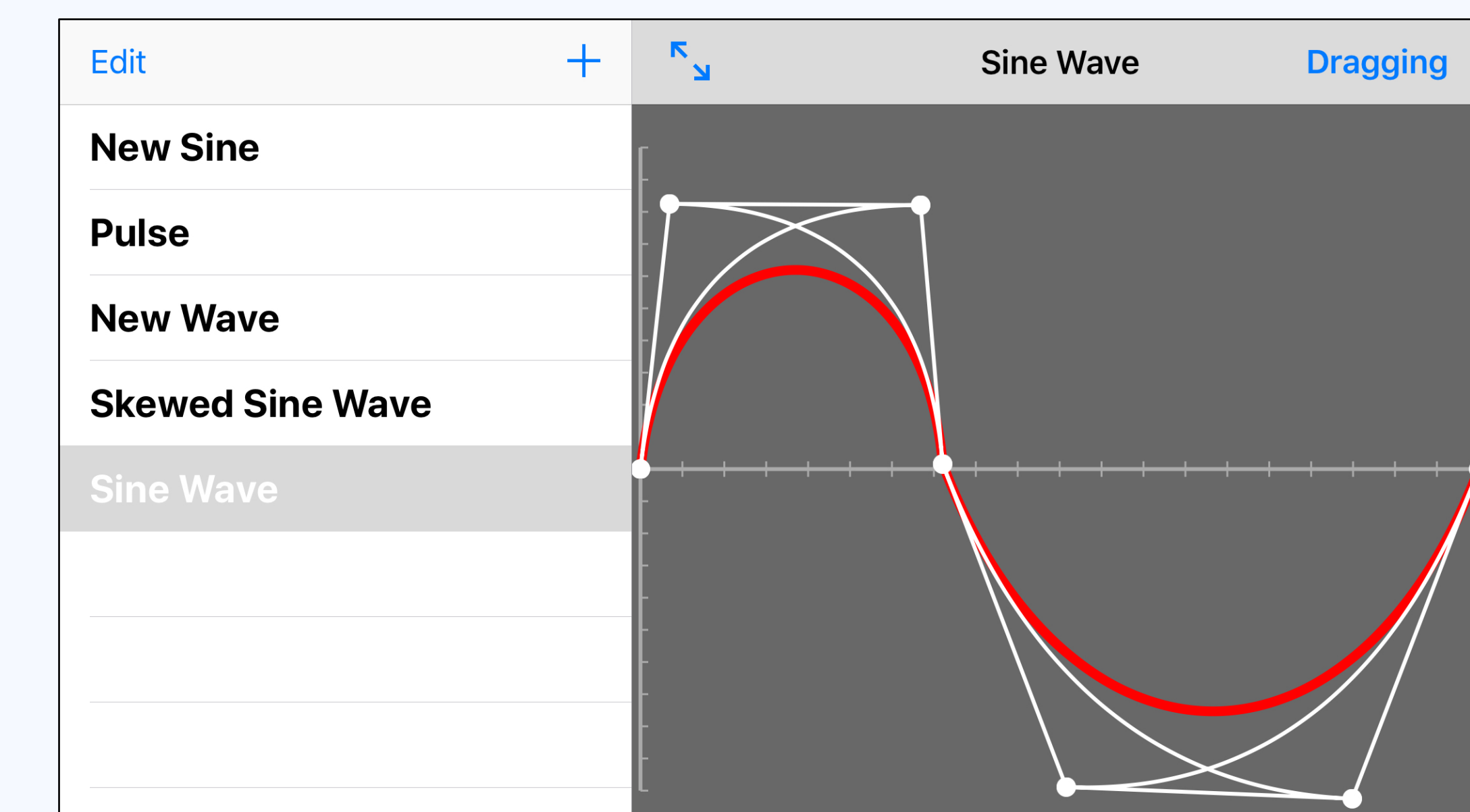


## Results

A single-channel prototype demonstrates feasibility

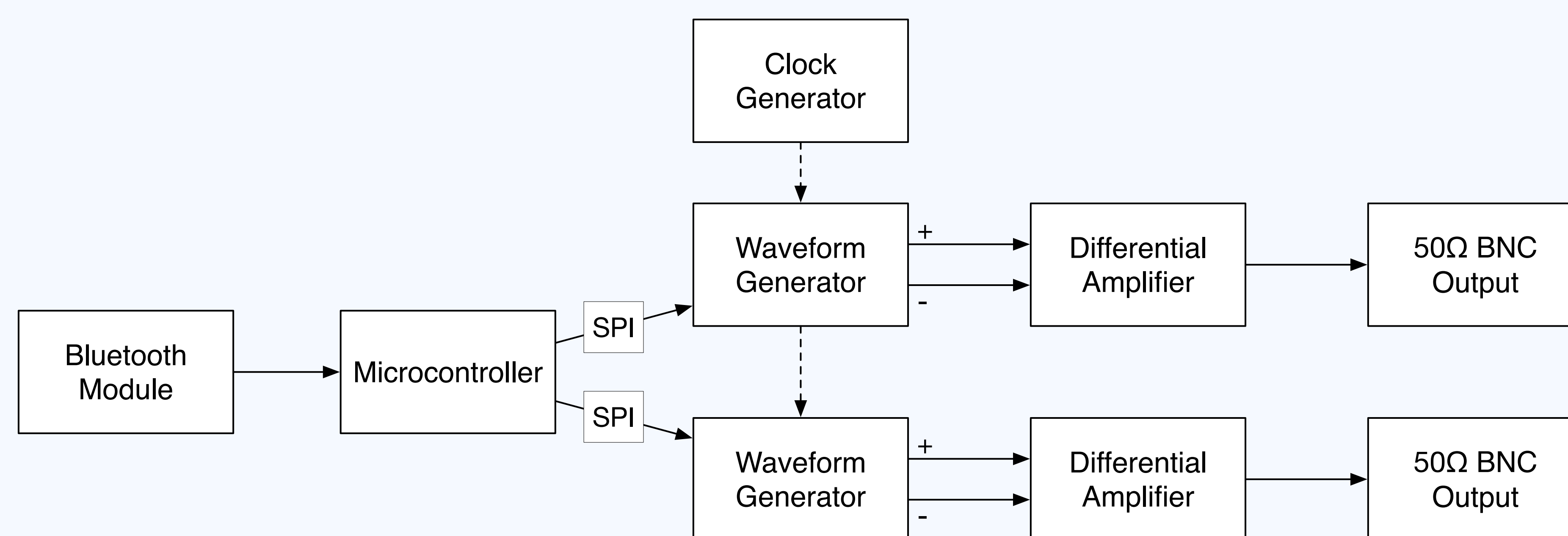
### iPhone App

- Allows the user to draw and edit waveforms
- Sends waveforms over Bluetooth to the waveform generator



## Hardware Design

- A microcontroller communicates with the iPhone app over Bluetooth and controls the waveform generator
- One waveform generator is used per output channel
- Each waveform generator produces a differential output, which is amplified and combined into a single-ended output
- The two clocks are synchronized by a common clock



### Waveform Generator

- Bluetooth Module (HM-11) accepts waveform definitions from the iPhone app
- Microcontroller (Arduino Uno) configures the waveform generator
- Waveform generator (AD9102 Evaluation Board) outputs differential signal
- Oscilloscope (Rigol 1054Z) calculates difference and displays the result

