Use single-power supply design. Assume you have a regulated 9 V power supply available.

IPhone Voltage output: http://www.youtube.com/watch?v=TAC-vVxSok0

Use CMOS variety of 555 timer

Make sure you decouple power supply lines.
Low-Side Driver

Buffer amplifier to ensure XR2209 sees proper voltages and Iphone is not loaded.

Trimpot to adjust frequency deviation.

555 Timer configured as a monostable that generates a 1 us pulse on rising/falling edge.

XR2209 VCO that generates square wave with 100 kHz center frequency and 85-115 kHz deviation.
XR-2209 This is a CCO with frequency that depends on current flowing out of Pin 4.

- **Help set frequency**
- **Decoupling Capacitor**
- **Pull-up resistor**
- **Bias network**
- **Determine VCO sensitivity**
- **VCO control voltage**
Limit this current to less than 6 mA

\[ f = \frac{1}{RC} \left[ 1 + \frac{R}{R_c} \left( 1 - \frac{V_c}{V_T} \right) \right] \]

\( f_{\text{max}} \) is when \( V_c = 0 \) (grounded, not open ...)

\( f_{\text{max}} \) is when \( V_c = V_T(1 + R_c/R) \) and oscillation stops.

\[ V_T = V_{\text{Pin}} - V_{\text{bias}} + 0.7 \text{ V} \]