FPGA Tuner Checklist

Minimum Viable Product

1. Recording and FFT (6 kHz with 1024 samples)
2. Magnitude and peak detection (finds lowest frequency peak)
3. Weighted averaging in cents-above-C_0 space
4. Display number of cents above C_0 on 7 segment display.

Small Stretch Goals

1. Temporal averaging to reduce output jitter
2. Peak detection by finding the difference between harmonics (required for detecting multiple notes)
3. Increasing operating range of tuner (i.e. increase sampling rate and number of samples)

Big Stretch Goals

1. Visualization on a monitor that displays the note name and a sliding bar indicating intonation (I'll do this first)
2. Simultaneous note detection (i.e. determining the pitch of two different notes being played at the same time).