1. Functional Design Requirements

1.1 Objectives

The main objective of this project is to determine whether there is a signal present at a frequency of 10Hz.

1.2 Product Requirements Outline

1. System must have an infrasound detector.
    a. Detector must be low cost
        i. An infrasound detector cannot cost more than $100
    b. Sensor must detect a subwoofer generated infrasonic signal
        i. Sensor must be sensitive enough to detect a 100dB SPL source from a distance of 1,000 meters.
        ii. Must be sensitive to 10Hz audio signals.

2. System algorithm must identify an infrasonic (10Hz) signal in presence of noise.
    a. System must use multiple sensors.
        i. System must rely on at least four infrasound detectors.
    b. System must be able to delay sensor data independently.
        i. Must be able to simulate listening to a specific locations by setting phase delays
    c. System must indicate signal presence in noise.
        i. Set detection threshold using signal detection theory.