



Portland State
UNIVERSITY

MASEEH COLLEGE OF ENGINEERING

T01 411 PRACTICUM PROJECT

Requirements Document

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Marketing Requirements	Engineering Requirements	Justification
5,7	System will be capable of producing tones based on finger contact.	Tone generation by finger contact is intuitive and typical for musical instruments.
5	System will be capable of producing a minimum of 5 frequencies.	With one frequency per finger, this provides a unique frequency for each fingertip.
4,6	System will be capable of altering the produced tones based on the status of at least 2 sensors .	Sensors, like knobs, sliders and buttons are intuitive, easy to use and increase perception of value .
1	The system will use an inexpensive cost micro-controller to produce low resolution sound.	Most low cost micro-controllers do not have analogue outputs so producing 1-bit sound as a base prevents undue reduction to development budget.
2,4	System must be wearable on users hand or forearm.	Placing the system on an arm makes it accessible, portable and easy to use.
3	System will be battery powered and have power consumption of approximately 2.5 Watts.	This makes the system loud enough to enjoy while still offering longer battery discharge times.
Marketing Requirements		
1.	The system should cost less than \$25.00 to manufacture.	
2.	The system should be wearable and portable.	
3.	The system will have low power consumption.	
4.	The system should be intuitively controlled.	
5.	The system will be capable of producing a variety of tones.	
6.	The system should be able to add audio effects to the tones.	
7.	The system must be capable of being used on most solid surfaces.	