

CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

Name(s)	Project Number
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	35553
Project Title	
DFID Thoromin. Music with No I imita	
KFID Thereinin: Wusic with No Linnis	
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Objectives/Goals Abstract	
The goal for my project was to create a device/musical minstrument that is ab	le o play any instrumental
sound and can be played without any physical contact through the use of elect	ronic tone generation
coming from a theremin and the use of RFID technology in order to play insu	mental sounds.
Methods/Materials	\searrow
RFID Transponders	\mathbf{Y}
RFID Reader O	
Theremin / /	
Speaker V	
Computer	
USB to Micro USB Cable	
As far as my results so my theramin prototype can reach frequencies low a	120 Hz to as high as
As fai as my results go my merenim prototype can reach nequencies as low as 1,1661 Hz. When calibrated at 6 inches away from the asterna, the low C of 1	30 8Hz should be audible
Fach note after that will incriminate in periods of 5 in hes Foreyample, the	note D of 146 8Hz will be
found 5.5 inches away from the antenna. After this octave and the high C of 261.6 the increments for	
each note will become smaller as the distance from the antenna shortens, coming down to increments of a	
guarter of an inch for the next octave and approximately arreighth of an inch for the octave after that.	
As for the RFID tags, I have them coded for a full chromatic octave from a low C to a high C with varying	
hertz depending on the instrumental sounds that they are programmed to play. They make a total of 13	
chromatic notes for each instrument. The RFID tags are able to play any sound as long as I have the sound	
files in the same directory as the program iself. I currently have sound files of a violin, piano, cello,	
guitar, and bells. I also have piano accompanies sound files that I can play	automatically with the
swype of a tag.	
Conclusions/Discussion	
Wy device is in fact able to play any instrumental sound or sound in general using RFID technology as	
with the survey of a PEID to a survey of a definition of the new sounds can simply	s used to call the sounds
program Both the therease and REU technology can be used simultaneuosly t	to play a song For anyone
with no musical background that cannot read music, or a person with a physic	cal or mental disibility: they
will be able to of a vintruments found with a simple swipe of your hand the	rough mid air.
Summary Statement	
I designed a mysical instrument that is able to play any instrumental sound the	at I want as ell as be able to
omit a wide range of elctronic tone generation with a simple wave of your har	d through mid air; an
instrument for the disabled.	6
Help Received	
Tech guy at school helped me wire board for the theremin. Emailed a science	buddies expert that helped
me with my program.	