Assignment 7.5

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University of Advancing Technology

MKT220: Final Project

Professor Valenzuela

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Research Goal:

Visit https://www.sciencedaily.com/news/computers_math/artificial_intelligence/ to select a topic on artificial intelligence.

Topic Selected: Listening skills bring human-like touch to robots

Figure 1.

Screenshot from Science Daily

Note. (Science Daily). (2024). Screenshot from Science News. Retrieved from https://www.sciencedaily.com/news/computers_math/artificial_intelligence/

Step 1: Describe the type of artificial intelligence tool.

What makes it unlike anything currently available?

When researching this topic, I read a quote that summarized one of the past short comings for robots, “Robots today mostly rely on vision to interpret the world” (Jiaxun Liu, 2024, sciencedaily.com). The article also lays out a visual narrative to understand what it’s like

for robots currently. It sets the stage by talking about sitting in a dark movie theater, wondering how much soda is left in your cup and instead of having to take the lid off to visually see how much soda is left, you can pick the cup up, shake it, and get an accurate indication of what is left in the cup. Which leads to Duke University's detailed system called "SonicSense" that allows robots to interact with their surroundings through vibrations. Although there have been attempts in the past to bring this technology to fruition, SonicSense has been said to perform better than previous technology, specifically citing the use of four fingers instead of one. Utilizing four fingers allows SonicSense to identify objects composed of more than one material.

What problem does it solve?

As mentioned above, SonicSense will allow robots to feel materials through vibrations. Currently robots have relied on vision senses to interpret objects and materials. With this new technology they will have the ability to "feel" items and have a better more accurate sense of the item they are touching.

Does it disrupt an industry or create a new one?

The current industry this would fall under would have to be AI and robotics. While it's not creating a new industry, I would say it's disrupting the current industry in a positive way. SonicSense is set on moving forward to enhance robot's ability to interact with multiple objects simultaneously bringing it closer to human like adaptability in real world tasks.

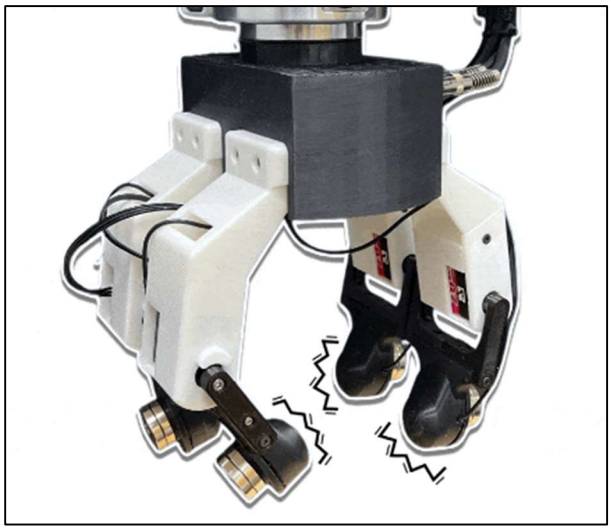
Is it a more efficient, faster, or less expensive alternative?

The overall construction costs of SonicSense is about $200. SonicSense uses the same contact microphones that musicians use to record sounds from guitars. SonicSense is also

leveraging 3D printing which seems to keep costs lower as well. While I couldn't find initial investments or labor costs, the overall construction costs seem extremely reasonable.

Figure 2

Picture of SonicSense

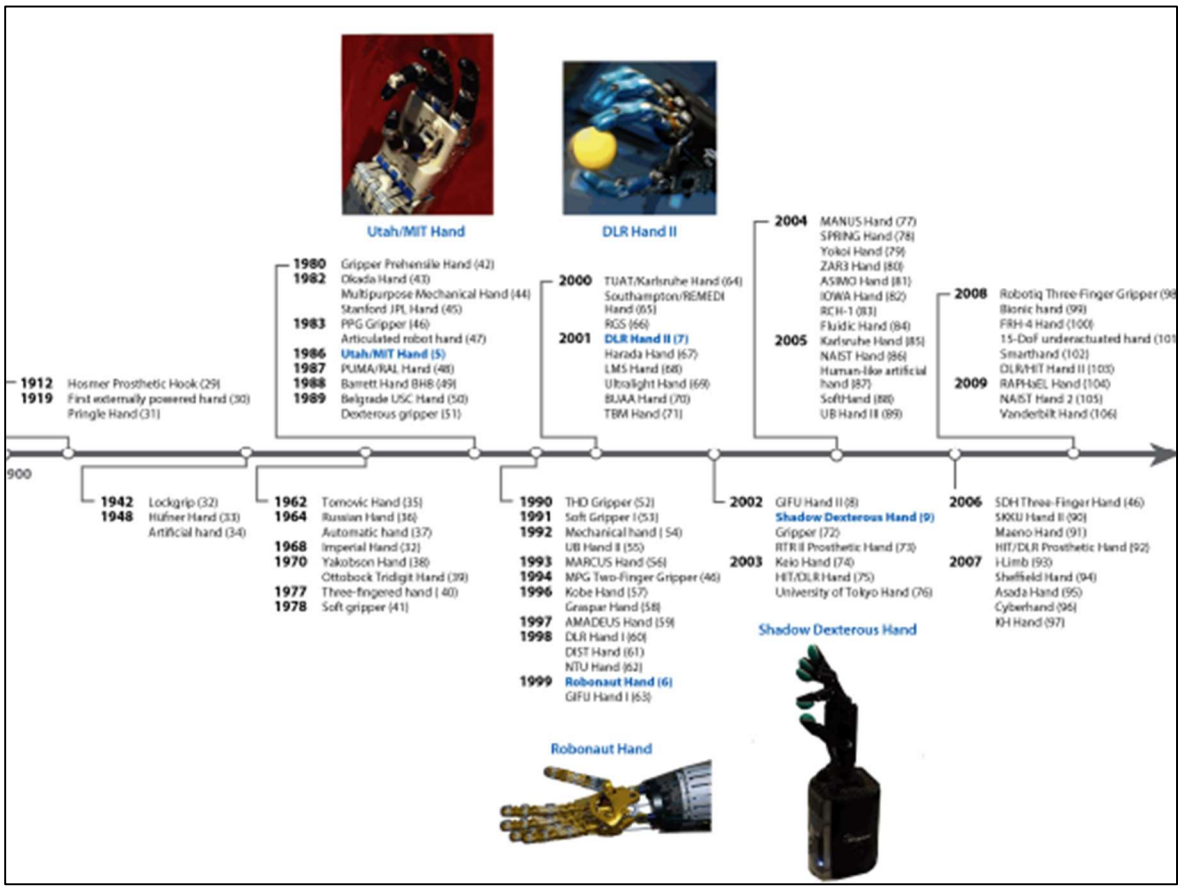


Note. (Duke, Pratt School of Engineering). (2024). Screenshot from Pratt School of Engineering. Retrieved from https://pratt.duke.edu/news/sonicsense-robotic-hand/

Step 2: Use search engines and academic resources to identify Prior Art.

Figure 3.

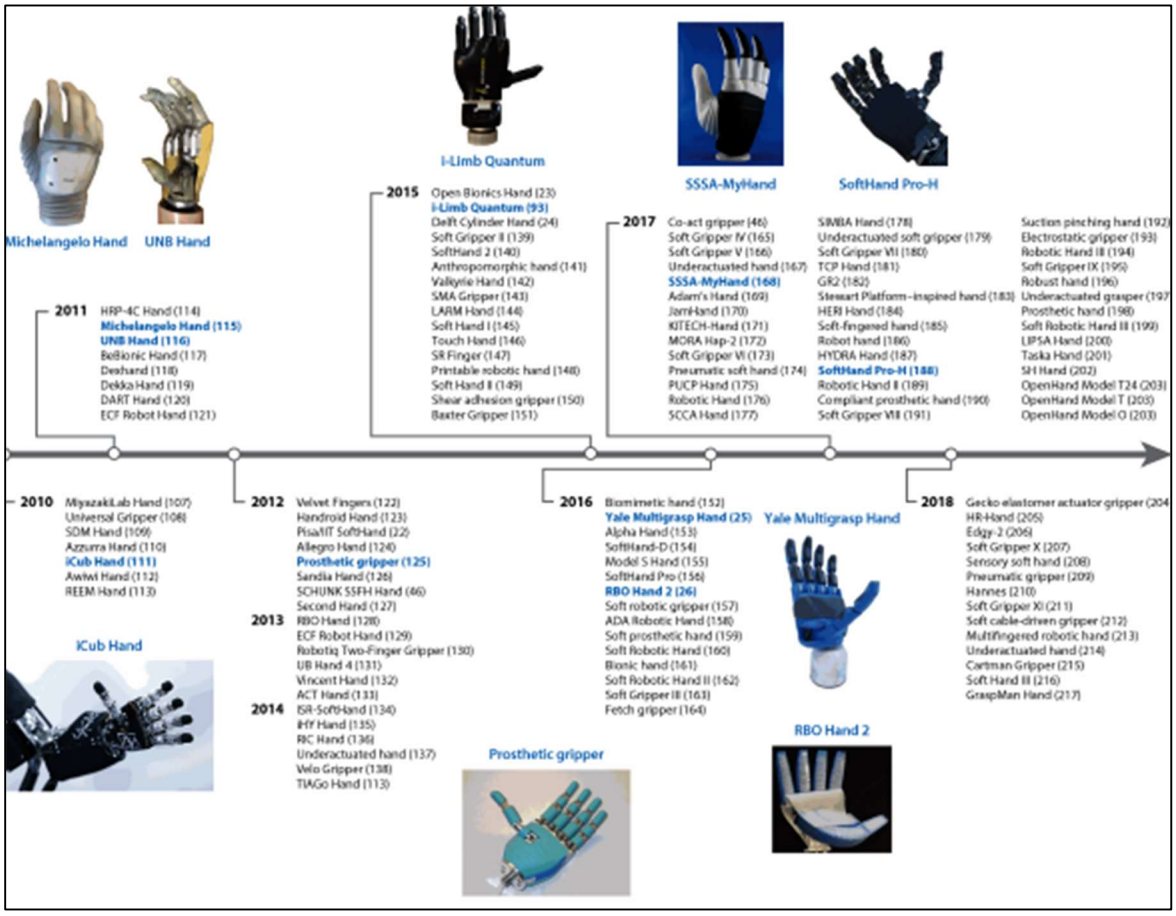
Timeline of Robotic Hands (years 1900-2009)



Note. (Annual Reviews). (2019). Screenshot from Vol. 2:1-32, A Century of Robotic Hands. Retrieved from https://www.annualreviews.org/content/journals/10.1146/annurev-control-060117-105003

Figure 4.

Timeline of Robotic Hands (years 2010-2019)



Note. (Annual Reviews). (2019). Screenshot from Vol. 2:1-32, A Century of Robotic Hands. Retrieved from https://www.annualreviews.org/content/journals/10.1146/annurev-control-060117-105003

Then, repeat this process through a search in the U.S. Copyright Office at the Library of Congress for patents and registered trademarks.

There are thousands and thousands of patents available when searching for robotic hands. To give you a visual, I've take a screenshot from the initial search results. For assignment purposes I'll pull the most recent patent as well as the oldest.

Figure 5.

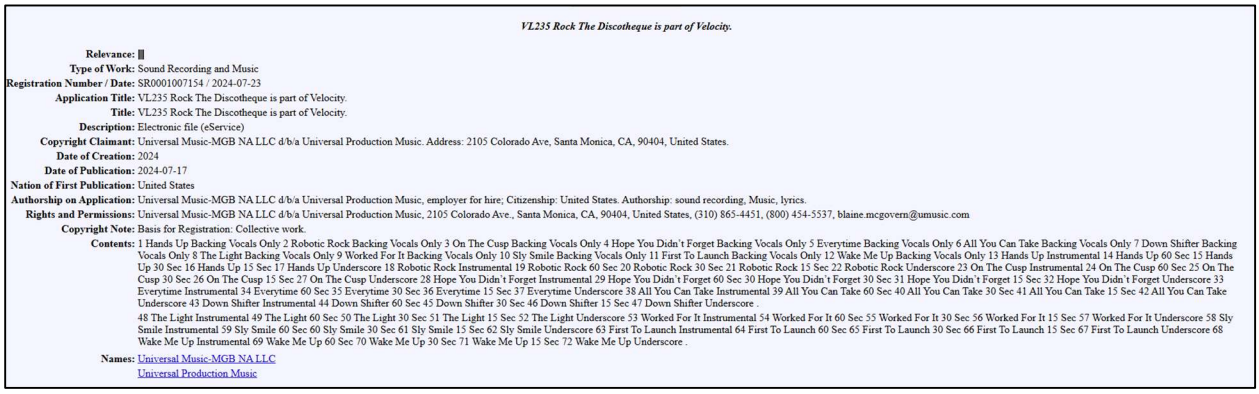
Copyright Public Catalog when searching for Robotic Hands

#	Relevance	Full Title	Copyright Number	Date
[1]		Tactile sensing for dextrous robotic hands / Ian David McCammon.	TX0003070438	1990
[2]		Survey on dextrous robotic hands / by Richard K. Miller and Terri C. Walker.	TX0002612975	1989
[3]		Model robotic arms & hands.	VAu000125581	1987
[4]		VL235 Rock The Discotheque is part of Velocity.	SR0001007154	2024
[5]		Tenth Dimension: Action Tools Volume 1.	SRu001371334	2016
[6]		Cardiovascular Perfusion & Cardiac Surgery Photographs. [Group registration of published photographs. 25 photographs. 2015-01-01 to 2015-12-31]	VA0002149952	2015
[7]		Artificial Life. [Published: 2013-12-05. Issue: vol. 20, no. 1. Winter 2014]	TX0007836872	2013
[8]		EINSTEIN MUSIC vol 1.	SR0000734177	2007
[9]		Meanings of / [performed by] Mark O'Connor.	SR0000069505	1986
[10]		Robotics training program work book 4: robotic structure / By Eshed Robotech, Ltd. TX 1-492-288.	V3228P479	1996
[11]		Robotic laboratory experiments (2 cartridges) By Prep, Inc / PA 263-084.	V3228P479	1996
[12]		Robotics training program text book: robotic laboratory experiments / By Eshed Robotech, Ltd. TX 1-669-197.	V3228P479	1996
[13]		Robotics training program work book 3 robotic laboratory experiments / By Eshed Robotech, Ltd. TX 1-669-228.	V3228P479	1996
[14]		Robotics training program work book 3: Robotic laboratory experiments / By Eshed Robotec, Ltd.	V2946P506	1994
[15]		Robotics training program text book: Robotic laboratory experiments / By Eshed Robotec, Ltd. TX 1-669-197.	V2946P506	1994
[16]		Robotics training program work book 4: Robotic structures / By Eshed Robotec, Ltd. TX.	V2946P506	1994
[17]		Robotics training program work book 4: Robotic structure / By Eshed Robotech, Ltd. TX 1-492-288.	V2946P485	1994
[18]		Robotic laboratory experiments (2 Cartridges) By Prep, Inc / PA 263-084.	V2946P485	1994
[19]		Robotics training program text book: Robotic laboratory experiments / By Eshed Robotech, Lt. TX 1-669-197.	V2946P485	1994
[20]		Robotics training program work book 3 robotic laboratory experiments / By Eshed Robotech, Ltd. TX 1-669-228.	V2946P485	1994
[21]		HCO bulletin of 7Aug83 robotic TRS / TX 2-250-733.	V2927P450	1993
[22]		Robotic stooges.	V2826P325	1992
[23]		Control dynamics of robotic manipulators / By J. M. Skowronski. TX 2-026-222 (1986)	V2271P302	1987
[24]		Robotic accessories / Catalog 921.	V1951P070	1982
[25]		Leveraging Fabric Substructure Variations of Actuator-Integrated Robotic Textiles for Wearable Applications.	TX0009437279	2024

Note. (Copyright Public Records System). (2024). Screenshot from search "Robotic Hands". Retrieved from https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?Search_Arg=robotic+hands&Search_Code=FT*&PID=-0_MRzzqTAWfGeU9mgf4F4BaTL_88Cv&SEQ=20241024114058&CNT=25&HIST=1

Figure 6.

Copyright Public Catalog, Robotic Hands, most recent (2024).



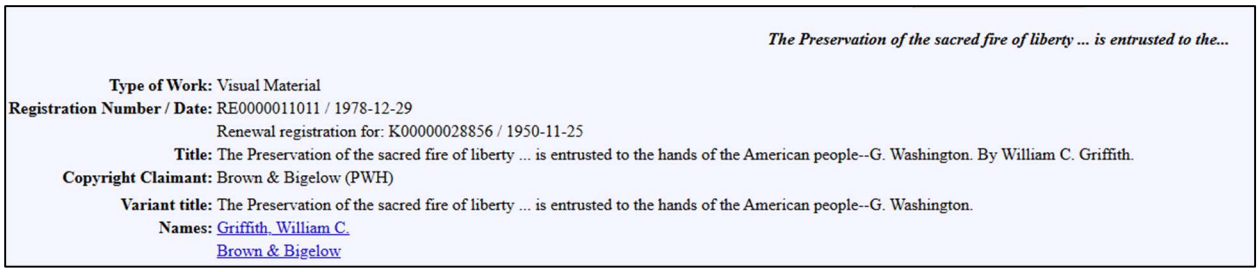
VL235 Rock The Discotheque is part of Velocity.

Relevance:
Type of Work: Sound Recording and Music
Registration Number / Date: SR0001007154 / 2024-07-23
Application Title: VL235 Rock The Discotheque is part of Velocity.
Title: VL235 Rock The Discotheque is part of Velocity.
Description: Electronic file (eService)
Copyright Claimant: Universal Music-MGB NA LLC d/b/a Universal Production Music. Address: 2105 Colorado Ave, Santa Monica, CA, 90404, United States.
Date of Creation: 2024
Date of Publication: 2024-07-17
Nation of First Publication: United States
Authorship on Application: Universal Music-MGB NA LLC d/b/a Universal Production Music, employer for hire; Citizenship: United States. Authorship: sound recording, Music, lyrics.
Rights and Permissions: Universal Music-MGB NA LLC d/b/a Universal Production Music, 2105 Colorado Ave., Santa Monica, CA, 90404, United States, (310) 865-4451, (800) 454-5537, blaine.mcgovern@umusic.com
Copyright Note: Basis for Registration: Collective work.
Contents: 1 Hands Up Backing Vocals Only 2 Robotic Rock Backing Vocals Only 3 On The Cusp Backing Vocals Only 4 Hope You Didn't Forget Backing Vocals Only 5 Everytime Backing Vocals Only 6 All You Can Take Backing Vocals Only 7 Down Shifter Backing Vocals Only 8 The Light Backing Vocals Only 9 Worked For It Backing Vocals Only 10 Sly Smile Backing Vocals Only 11 First To Launch Backing Vocals Only 12 Wake Me Up Backing Vocals Only 13 Hands Up Instrumental 14 Hands Up 60 Sec 15 Hands Up 30 Sec 16 Hands Up 15 Sec 17 Hands Up Underscore 18 Robotic Rock Instrumental 19 Robotic Rock 60 Sec 20 Robotic Rock 30 Sec 21 Robotic Rock 15 Sec 22 Robotic Rock Underscore 23 On The Cusp Instrumental 24 On The Cusp 60 Sec 25 On The Cusp 30 Sec 26 On The Cusp 15 Sec 27 On The Cusp Underscore 28 Hope You Didn't Forget Instrumental 29 Hope You Didn't Forget 60 Sec 30 Hope You Didn't Forget 30 Sec 31 Hope You Didn't Forget 15 Sec 32 Hope You Didn't Forget Underscore 33 Everytime Instrumental 34 Everytime 60 Sec 35 Everytime 30 Sec 36 Everytime 15 Sec 37 Everytime Underscore 38 All You Can Take Instrumental 39 All You Can Take 60 Sec 40 All You Can Take 30 Sec 41 All You Can Take 15 Sec 42 All You Can Take Underscore 43 Down Shifter Instrumental 44 Down Shifter 60 Sec 45 Down Shifter 30 Sec 46 Down Shifter 15 Sec 47 Down Shifter Underscore . 48 The Light Instrumental 49 The Light 60 Sec 50 The Light 30 Sec 51 The Light 15 Sec 52 The Light Underscore 53 Worked For It Instrumental 54 Worked For It 60 Sec 55 Worked For It 30 Sec 56 Worked For It 15 Sec 57 Worked For It Underscore 58 Sly Smile Instrumental 59 Sly Smile 60 Sec 60 Sly Smile 30 Sec 61 Sly Smile 15 Sec 62 Sly Smile Underscore 63 First To Launch Instrumental 64 First To Launch 60 Sec 65 First To Launch 30 Sec 66 First To Launch 15 Sec 67 First To Launch Underscore 68 Wake Me Up Instrumental 69 Wake Me Up 60 Sec 70 Wake Me Up 30 Sec 71 Wake Me Up 15 Sec 72 Wake Me Up Underscore .
Names: Universal Music-MGB NA LLC
Universal Production Music

Note. (Copyright Public Records System). (2024). Screenshot of VL235 Rock The Discotheque is part of Velocity. Retrieved from https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?Search_Arg=robotic+hands&Search_Code=FT*&PID=-0_MRzzqTAWfGeU9mgf4F4BaTL_88Cv&SEQ=20241024114058&CNT=25&HIST=1

Figure 7.

Copyright Public Catalog, Robotic Hands, earliest on record (1978)



The Preservation of the sacred fire of liberty ... is entrusted to the...

Type of Work: Visual Material
Registration Number / Date: RE0000011011 / 1978-12-29
Renewal registration for: K00000028856 / 1950-11-25
Title: The Preservation of the sacred fire of liberty ... is entrusted to the hands of the American people--G. Washington. By William C. Griffith.
Copyright Claimant: Brown & Bigelow (PWH)
Variant title: The Preservation of the sacred fire of liberty ... is entrusted to the hands of the American people--G. Washington.
Names: Griffith, William C.
Brown & Bigelow

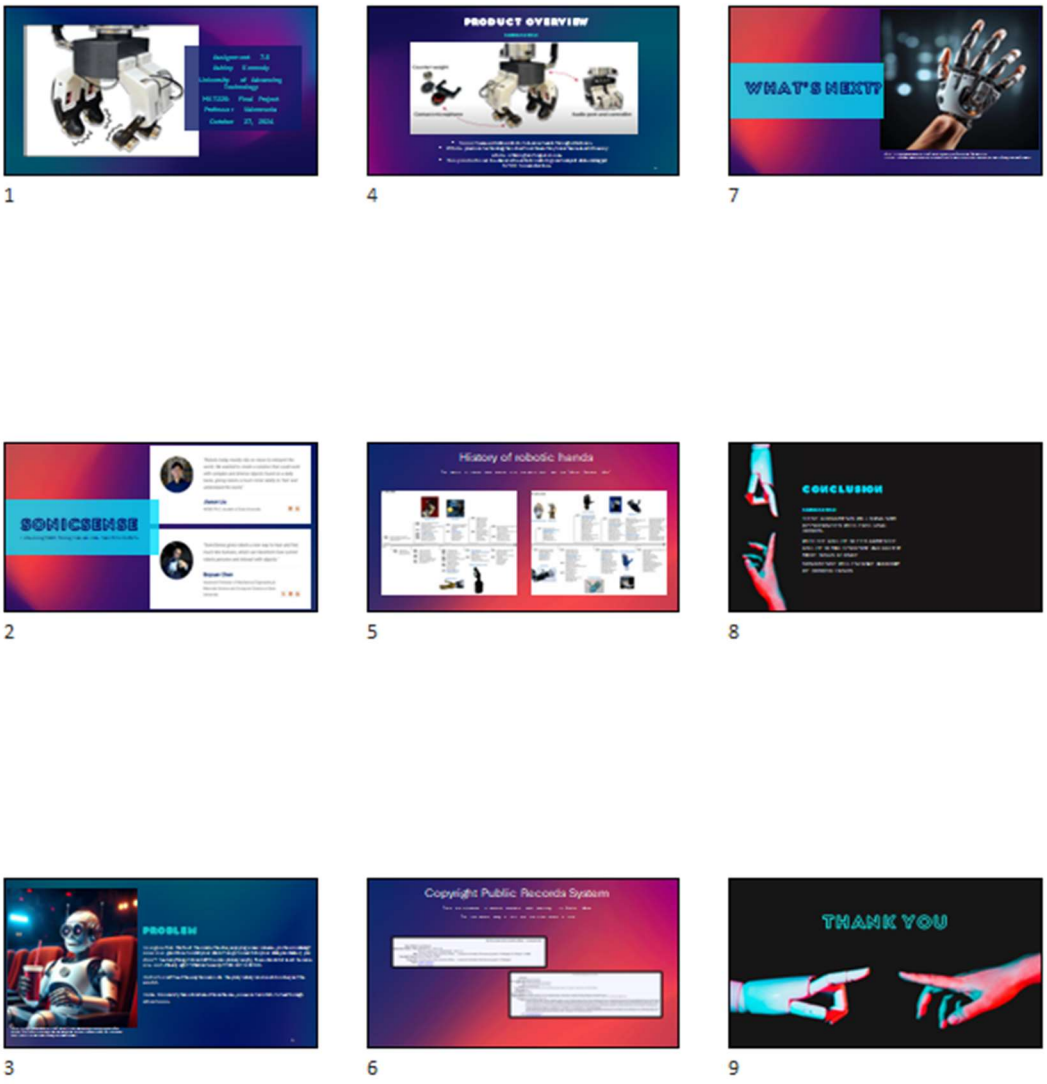
Note. (Copyright Public Records System). (2024). Screenshot of *The Preservation of the sacred fire of liberty ... is entrusted to the...*Retrieved from https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=1&ti=1,1&Search_Arg=robotic

hands&Search_Code=FT%2A&CNT=25&REC=0&RD=0&RC=0&PID=o1yin66_NB30VC0BF6rLA-hShRxDwkF&SEQ=20241024115615&SID=3

Step 3: Present your findings in a visual presentation and submit via canvas with your resources listed in APA format.

Figure 8.

Screen shot of power point presentation



References

Duke University (October 23, 2024). Listening skills bring human-like touch to robots. Retrieved October 24, 2024 from https://www.sciencedaily.com/news/computers_math/artificial_intelligence/

Pratt School of Engineering (October 22, 2024). Listening skills bring human-like touch to robots. Retrieved October 24, 2024 from https://pratt.duke.edu/news/sonicsense-robotic-hand/

Piazza, C (May, 2019). A Century of Robotic Hands. Retrieved October 24, 2024 from https://www.annualreviews.org/content/journals/10.1146/annurev-control-060117-105003

Copyright Public Records System (2024). Public Search Catalog. Retrieved October 24, 2024 from https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?Search_Arg=robotic+hands&Search_Code=FT*&PID=-0_MRzzqTAWfGeU9mgf4F4BaTL_88Cv&SEQ=20241024114058&CNT=25&HIST=1

Adobe Systems (2024). Adobe Express AI. Retrieved from https://new.express.adobe.com/