

Handbook of the Design Expo 2024

About the Handbook

- Welcome to the handbook of the Design Expo 2024 in MECH2520, a significant event that provides a platform for students, teaching team, and guests to showcase their innovative designs and receive valuable feedback.

Schedule

- Date: 14:00 – 17:00, 16 May 2024;
- Location: Online event on *Spatial* via <https://www.spatial.io/s/Design-expo-2024-Main-Hall-663ad9ea5b7cc2683c377089?share=2414586865543763222> ;
- Participants: MECH2520 students, teaching team, and guests.

Objectives

- Make a 10-minute presentation (8 min talk + 2 min Q&A) on the design;
- Receive feedback from classmates, the teaching team, and guests.

Before the Design Expo

- Designs proposed by students have been grouped into four sessions: household, aerospace, automotive and generic.
- Each student is assigned to a 10-minute time slot in the corresponding session. The time slot and corresponding session are in Appendix B. Students must be online for at least 10 minutes to give the presentation and receive feedback.
- The session chair will strictly monitor the time for presentation. Please arrange the presentation material wisely and ensure your microphone & camera tested before the event.

Program rundown

- Instructions on how to access the Spatial platform are provided in Appendix A.
- Presentations in all sessions will start simultaneously and proceed according to the schedule in Appendix B.
- Students must be present at their designated timeslot to give the presentation and receive feedback. Before and after this timeslot, students are free to join other sessions and comment on others' designs. If the student cannot join the Design Expo, please provide the proof, and send the pre-recorded 8-minute video to your session chair.
- After the Design Expo, students need to produce a Final Report on your design, considering the feedback provided by the audience.

Appendix A: Instructions on how to access the main hall and other presentation sessions

1. Click the provided link to access the [Design Expo 2024] Main Hall, as shown in Figure 1.
2. Click the 'Log In' button on the top-right corner to log in to the platform. During the registration process, please rename the character using your real name.

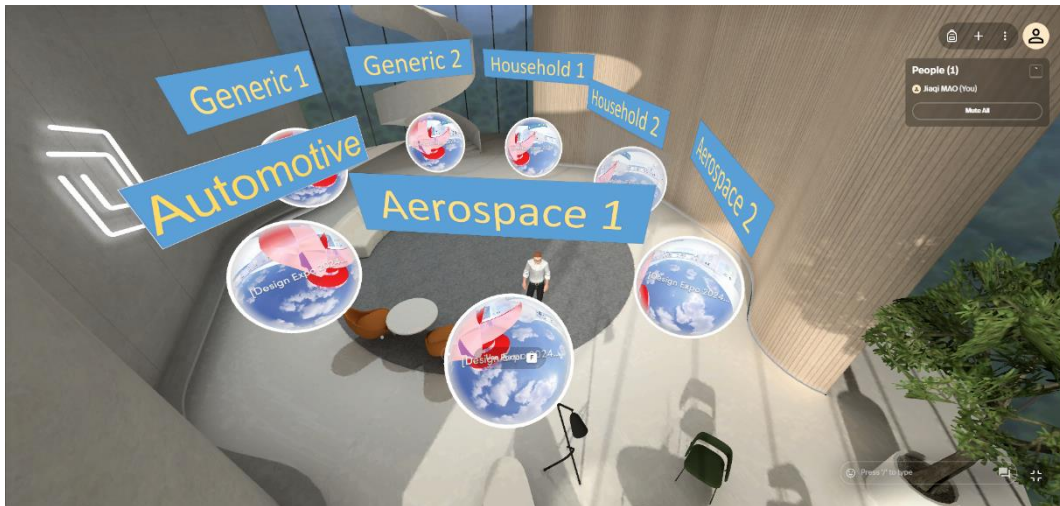


Figure 1: Main Hall of the Design Expo 2024

3. Once logged in, you should see:
 - a. your character standing in the Main Hall with your name shown in the People tab;
 - b. seven doors directing to different sessions, which are: Household 1, Household 2, Generic 1, Generic 2, Automotive, Aerospace 1, and Aerospace 2.
4. Before hanging around, you are strongly suggested to enter your session and review your material. To join a specific session, e.g. 'Automotive', please click the round object underneath the 'Automotive' banner and click 'Travel' in the popup message.
5. Each student is assigned a unique number, provided in Appendix B. Please locate your display area by tracking your number.



Figure 2: 'Automotive' session (The number is highlighted in red.)

- Your files are arranged in the display area, as shown in Figure 3. Please help ensure that the number and material shown are correct. If you notice any mistakes or want to update the content, please email your session chair with updated documents attached.



Figure 3: Presentation schematic

- You are suggested testing the microphone and camera in advance. You can invite your classmates or teaching assistants to join the same session and make a mock presentation to cross-check the microphone and camera.



Figure 4: Microphone and camera setting (highlighted in red)

- To return to the Main Hall, please click the round object underneath the 'Main Hall' banner in the centre of this space and click 'Travel' in the popup message. You should now know how to access the Main Hall and other sessions. You can walk between the sessions and review your classmates' designs.

Appendix B: Presentation and recording details

- ‘Household 1’ session (Chair: Gao LOU)

Design Expo Name	Date: 14:00 - 17:00, 16 May 2024	Topic	Category	Session chair	Session	Number	Presentation time
AU, Wing Leong		Mopping Machine	Household	Gao LOU	Household 1	101	14:00 - 14:10
BEHL, Gurutva		Hand Coffee Grinder	Household			102	14:10 - 14:20
CHAN, Chung Tin		Umbrella Tent	Household			103	14:20 - 14:30
CHAN, Pak Tsim		Door Lock	Household			104	14:30 - 14:40
CHAU, Shing Cheong		Office Chair	Household			105	14:40 - 14:50
CHENG, Ka Yuet		Blender	Household			106	14:50 - 15:00
CHIU, Ming Hin		Umbrella	Household			107	15:00 - 15:10
CHOI, Yunyeong		Egg Beater	Household			108	15:10 - 15:20
HUH, Dam		DIY Pendulum Clock	Household			109	15:20 - 15:30
KIM, Junsoo		Electric Shaver	Household			110	15:30 - 15:40
KUAN, Hing		Height Adjustable Desk	Household			111	15:40 - 15:50
KWOK, Ka Shing		Electric Ferris Wheel Toy	Household			112	15:50 - 16:00
LEUNG, Yat Fung		Ergonomic Office Chair	Household			113	16:00 - 16:10
LI, Lok Yiu		Assemble Of Umbrella	Household			114	16:10 - 16:20
LIE, Ari Nathan Visesa		Bladeless Fan	Household			115	16:20 - 16:30
LO, Hau Ching		Portable Umbrella	Household			116	16:30 - 16:40
MOK, Cheuk Hei Oscar		Pendulum Clock	Household			117	16:40 - 16:50
MUI, Jessye		Typewriter	Household			118	16:50 - 17:00

- ‘Household 2’ session (Chair: Yuexin YANG)

Design Expo Name	Date: 14:00 - 17:00, 16 May 2024	Topic	Category	Session chair	Session	Number	Presentation time
NG, Bryan Jing Jie		Door Closer	Household	Yuexin YANG	Household 2	119	14:00 - 14:10
NG, Sum Wa		Egg Whisk	Household			120	14:10 - 14:20
NGAI, Tak Chung		Pocket Umbrella	Household			121	14:20 - 14:30
PARK, Jeongwon		Pencil Sharpener	Household			122	14:30 - 14:40
SAM, Siu Chuen		Trash Can	Household			123	14:40 - 14:50
SUNG, Cheuk Wing		Adjustable Laptop Stand	Household			124	14:50 - 15:00
TAN, Chi Hei		Home lift	Household			125	15:00 - 15:10
TONG, Kwo Yi		Door Lock	Household			126	15:10 - 15:20
TSOI, Hiu Fai		Electric Shaver	Household			127	15:20 - 15:30
WAN, Kai Hei		Mechanical Watch	Household			128	15:30 - 15:40
WONG, Hong Yuen		Cassette Tape	Household			129	15:40 - 15:50
WONG, Ka Kit		Desk Lamp	Household			130	15:50 - 16:00
WONG, Siu Chung		Fan	Household			131	16:00 - 16:10
YANG, Henry		Household Fan	Household			132	16:10 - 16:20
YANG, Yingen		Automatic Pet Feeder	Household			133	16:20 - 16:30
YIM, Ching		VoteBox	Household			134	16:30 - 16:40
YU, Cheuk Hang		Foldable Lamp	Household			135	16:40 - 16:50
YEUNG, Yuen Yen		Adjustable Chair	Household			136	16:50 - 17:00

- ‘Generic 1 & 2’ sessions (Chair: Stanley Leung)

Design Expo Name	Date: 14:00 - 17:00, 16 May 2024	Topic	Category	Session chair	Session	Number	Presentation time
BUI, Man Chung		Soccer Robot	Advance	Stanley	Generic 1	201	14:00 - 14:10
CHAN, Pok Him		Windmill For Ground Grain	Advance			202	14:10 - 14:20
CHAN, Yi Kiu		Redesign Hand Water Pump	Advance			203	14:20 - 14:30
CHENG, Yuk Lan		Direct Drive Bass Drum Pedal	Advance			204	14:30 - 14:40
HUNG, Anddy Tung		Elevator	Advance			205	14:40 - 14:50
HUNG, Ho Wai Howard		Building Maintenance Unit	Advance			206	14:50 - 15:00
JANIUS, Erick		Grinder Machine (Hammer Mill)	Advance			207	15:00 - 15:10
LEE, Nok Tung		3-Axis Stabilizer	Advance			208	15:20 - 15:30
LEUNG, Chin Hei		Robotic Arm	Advance			209	15:30 - 15:40
LUI, Chin Hung		Elevating Conveyor	Advance			210	15:40 - 15:50
LYU, Dawei		Hydraulic Jacks	Advance		Generic 2	211	14:00 - 14:10
NG, Chak		Pumpjack	Advance			212	14:10 - 14:20
SHI, Yucheng		Super Gear Pump	Advance			213	14:20 - 14:30
SZETO, Wang Him		Robotic Arm	Advance			214	14:30 - 14:40
TONG, Tsz Kin		Ball Shooter	Advance			215	14:40 - 14:50
Wong Tsz Him Steven		Automatic Robot For Food Delivery	Advance			216	14:50 - 15:00
WONG, Lai Yin Garmisch		Robotic Arm	Advance			217	15:00 - 15:10
WONG, Yin Kiu		Motion Detection Camera	Advance			218	15:10 - 15:20
YEP, Siu Wang		Excavator Arm	Advance			219	15:20 - 15:30
ZENG, Minyu		Lunar Rover Suspension & Driving System	Advance			220	15:30 - 15:40
ZHANG, Yunming		Robotic Sixth Finger	Advance			221	15:40 - 15:50
LAU, Tsz Kit		Robotic Arm	Advance			222	15:50 - 16:00

- ‘Automotive’ session (Chair: Jiaqi MAO)

Design Expo Name	Date: 14:00 - 17:00, 16 May 2024	Topic	Category	Session chair	Session	Number	Presentation time
BARBERO SANCHEZ, Clara		Go-Kart	Automotive	Jiaqi MAO	Automotive	301	14:00 - 14:10
CHAN, Chun Ting		In-build Clutch Rear Differential	Automotive			302	14:10 - 14:20
CHAN, Cyrus Ho Hong		H-pattern Gearbox	Automotive			303	14:20 - 14:30
CHAN, Ho Yin		Da Vinci's Tank	Automotive			304	14:30 - 14:40
CHAN, Wai Chun		Foldable Scooter	Automotive			305	14:40 - 14:50
CHENG, Louis		Multi-purpose Compact Rotary Engine	Automotive			306	14:50 - 15:00
CHONG, Sung-jin		Foldable Scooter	Automotive			307	15:00 - 15:10
FEI, Jiaxuan		Wankel Engine	Automotive			308	15:10 - 15:20
FENG, Jiawei		Stirling Engine	Automotive			309	15:20 - 15:30
HOSEA, Gabriel Jonathan Matthew		Bicycle Belt Drive	Automotive			310	15:30 - 15:40
KAM, Sheung Chun		Simple Car Model	Automotive			311	15:40 - 15:50
KWONG, Wai Ho		Squential Gear Box	Automotive			312	15:50 - 16:00
LAM, Shung Ching		Car Jack	Automotive			313	16:00 - 16:10
SANDHU, Prabhroop Singh		Four Cylinder Engine	Automotive			314	16:10 - 16:20
TAM, Ho Tung		Shaft Drive Bicycle	Automotive			315	16:20 - 16:30
YIP, Wing Hei Oscar		Scooter	Automotive			316	16:30 - 16:40

- ‘Aerospace’ session (Chair: Lijing LIU)

Design Expo	Date: 14:00 - 17:00, 16 May 2024					
Name	Topic	Category	Session chair	Session	Number	Presentation time
CHAN, Chin Wing Wallace	Minature Wind Turbine	Aerospace	Lijing LIU	Aerospace 1	401	14:00 - 14:10
CHENG, Wang Kit	Trent 1000 Turbofan engine	Aerospace			402	14:10 - 14:20
CHO, Chi Hin	Landing Gear Structure	Aerospace			403	14:20 - 14:30
CHOW, Tsz Hong Matthew	Turbofan Engine	Aerospace			404	14:30 - 14:40
KHAN, Mohammad Usman	The Wright Flyer 1903	Aerospace			405	14:40 - 14:50
KIM, Seung Kyun	Main Landing Gear	Aerospace			406	14:50 - 15:00
LEE, Jeonghoon	Wind Turbine	Aerospace			408	15:00 - 15:10
RYU, Ho Jin	Helicopter Rotor	Aerospace			409	15:10 - 15:20
SUN, Hoi Chi	Turbofan Engine CF6 80C2	Aerospace		410	15:20 - 15:30	
SWIFT, Harry John	Turbofan Engine	Aerospace		411	15:30 - 15:40	
TSENG, Jun Long Maximilian	Turbojet Engine J58	Aerospace		412	15:40 - 15:50	
WONG, Yiu Ting	Weight Delivery drone	Aerospace		413	15:50 - 16:00	
XIE, Sze Wing	Drone	Aerospace		414	16:00 - 16:10	
YEUNG, Siu Ting	Small Scale Wind Turbine	Aerospace		415	16:10 - 16:20	
ZHAI, Tsz Yeung	Wind Turbine	Aerospace		416	16:20 - 16:30	