

Kai Jie Tan (Kyler)

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Engineering Product Development & Technical Project Manager (PMP) with 4 years of experience leading cross-functional development of embedded hardware products from concept through mass production. Experienced in industrial design (ID), mechanical engineering, manufacturing, supplier management and developer ecosystem initiatives across Singapore and China. Passionate about building innovative hardware products by bridging engineering, design, manufacturing and business.

WORK EXPERIENCES

Espressif Systems (Singapore) Pte Ltd

Hardware and Application Engineering Project Manager

Singapore & Shanghai

Sep 22 - Jul 26

- **Led end-to-end New Product Introduction (NPI) for 4+ embedded hardware products** in the Internet of Things (IoT) space, driving cross-functional execution from concept, industrial design and engineering validation (EVT, DVT, PVT) through tooling, manufacturing and product launch by coordinating Hardware, AI, Applications, Audio, Developer Relations, Marketing and Business teams across Singapore and China.
- Spent **2 years at the Shanghai headquarters** leading global product and developer ecosystem initiatives by aligning regional teams, establishing engagement standards and eliminating duplicated efforts, improving execution consistency across worldwide offices.
- Contributed as both **Industrial Designer and Mechanical Design Engineer** in over 50 demos, translating product requirements into manufacturable designs through industrial design, CMF development, DFM/DFA/DFX, tolerance analysis, design verification, reliability testing and validation.
- **Delivered production-ready hardware by partnering with injection mold suppliers in China** on tooling development, engineering changes, tolerance optimisation and production readiness, ensuring production ramp and commercial launch.
- Built **strategic partnerships with 30+ local and overseas universities, professors and student organizations** by leading 15+ sponsorships, 20+ workshops and technical collaborations, strengthening developer adoption while expanding the company's campus recruitment pipeline.
- Managed complex multidisciplinary hardware programmes by proactively **mitigating technical risks, aligning stakeholders and driving execution**, while initiating developer-enablement and process improvement initiatives that increased product adoption and operational efficiency across geographically distributed teams.
- Identified opportunities beyond formal responsibilities by initiating new products, developer-enablement initiatives and process improvements that enhance product adoption, operational efficiency, and community engagement.
- Spearheaded the deployment of development kit vending machines across the National University of Singapore (NUS) and Singapore University of Technology and Design (SUTD), coordinating regulatory approval, vendor management, operations, inventory planning, sales analytics and stakeholder reporting to establish a scalable developer outreach programme.

WS Audiology

Derived Product R&D, Intern

Singapore

May 20 - Aug 20

- Automated repetitive usability testing by developing an Arduino-based test platform, improving testing efficiency, and reducing manual effort.
- Developed and validated prototype iterations through usability testing, translating user feedback into practical design improvements.
- Researched new technologies and contributed design concepts during engineering reviews, supporting product innovation and product development.

Singapore Armed Forces (SAF)

Infantry, Lieutenant (LTA)

Singapore

Jul 18 - May 19

- Coordinated and developed a team of **32 personnel**, fostering accountability, resilience, and high performance in demanding operational environments.
- Planned and executed complex operations involving multiple stakeholders, demonstrating strong leadership, decision-making, and execution under pressure.

Greenology Pte Ltd

Urban Farming Solutions, Intern

Singapore

Sep 16 - Oct 16

- Improved the performance of hydroponic systems by designing and testing enhancements to water distribution, flow rate and pressure, applying fluid mechanics principles to optimize irrigation efficiency.
- Conducted R&D experiments on water quality and substrate performance by collecting and analyzing growth data, supporting evidence-based improvements to hydroponic system design.

EDUCATION

Singapore University of Technology and Design

- Bachelor of Engineering (Engineering Product Development), Merit, CGPA 3.50
- Course Track: Beyond Industry 4.0
- Minor in Design, Technology and Society

Singapore

May 19 - Sep 22

Singapore Polytechnic

- Diploma for Mechanical Engineering (Full Time), Merit, CGPA 3.79
- Course Track: Engineering Academy Programme
- Diploma Plus Certificate in Design Thinking

Singapore

Apr 14 - Mar 17

TECHNICAL PROJECTS

Undergraduate Capstone Project AY21/22

Outdoor Cleaning Robot with Lionsbot, Team Lead and Hardware Lead

SUTD

Dec 21 - Aug 22

- Directed a **7-member multidisciplinary team** (4 Software, 3 Hardware) by decomposing the **outdoor cleaning robot** into hardware subsystems, coordinating hardware-software integration, removing technical blockers and driving system-level delivery through effective planning and cross-functional collaboration.
- Designed and integrated key mechanical subsystems including the industrial design, chassis, aluminium structure, body panels, wire harness, wheel system, hub motor and brush assemblies, applying structural simulation and load analysis to deliver a functional outdoor cleaning robot in collaboration with Lionsbot.

Electric Vehicle Additive Manufacturing (EVAM)

Project Lead and Body Integration Lead

SUTD

Sep 20 - Jul 22

- Established the **founding multidisciplinary team** in developing SUTD's first **2-seater Formula E-style electric race car**, establishing the EVAM platform that continues to serve as a flagship student engineering project.
- Directed vehicle body integration by coordinating subsystem interfaces while leading the design and integration of the body structure using additive manufacturing and generative design techniques.

Engineering Design Innovation Course

Telepresence Chinese Chess, Team Lead and Mechanical Design Lead

SUTD

May 21 - Aug 21

- Led a **5-member multidisciplinary team** (Mechanical, Electrical and Software) through the product design process by conducting user research with elderly residents in Chinatown, translating customer insights into a telepresence solution that enabled remote social interaction during the COVID-19 pandemic.
- Developed the industrial and mechanical design of the product, developing a **Core-XY gantry with an electromagnetic system** to accurately manipulate chess pieces while balancing usability, manufacturability and system integration.

LEADERSHIP EXPERIENCE

SUTD Student Association Council, Maker Cluster Representative

SUTD May 20 - July 21

- Represented and coordinated **13 engineering and maker-focused student organizations** in cross-club partnerships, strengthening the university's maker community, and advocating student interests with the Student Association.

SUTD Electric Vehicle Club, President

SUTD Mar 20 - July 21

- Spearheaded the strategic direction and operations of the university's Electric Vehicle Club, overseeing engineering projects, member development and organizational planning.
- Initiated new engineering projects, workshops and technical training programmes, expanding opportunities for hands-on learning and multidisciplinary collaboration and engagement.

CERTIFICATIONS AND SKILLS

Hardware Development: Mechanical Design • NPI • EVT • DVT • DfMA • GD&T • Supplier Management (Mainland China), Injection Molding (ECO verification for tooling) • CAD • Certified SOLIDWORKS Associate in Mechanical Design (CSWA) • Autodesk Inventor • Fusion360 • Creo Parametric • Industrial Design (User Experience and Product Design) • 3D Rendering (Keyshot, Blender) • Product Validation • PCBA Design (component placement and planning)

Program Management: Project Management Institute – Certification Associate Project Management & Project Management Professional (PMI – CAPM #4166199, PMI – PMP #4436802) covering Traditional (Waterfall) • Agile • Hybrid Approach • Stakeholder Management • Product Roadmapping • Cross-functional Leadership • Business Analysis

Engineering & Software Tools: AI-forward workflow (ChatGPT Projects, Claude Skills) • Embedded Systems (microcontroller) • Arduino • C++ • Python • ANSYS • JIRA • Notion • Creative Media (Digital Art, 3D Sculpting, Video Editing, Animations)

Hands-on Skills: Prototyping (hand tools, power tools) • 3D Printing • 2D Laser Cutting • Milling • Turning • Router • Water Jet • TIG Welding • Composite lay-up and vacuum bagging

Language: Fluent in English and Mandarin (spoken & written) (led Mandarin discussion with China suppliers)

Personal: DIY Electronics Projects • 3D Printing • Puzzles • Gunpla Plastic Modelling • Art and Sketching