

Full-stack product engineering · Bengaluru · India

# Metal to cloud, under one roof.

Lightcones Engineering is the product engineering partner for hardware-led companies. We take you from schematic to certified device, and from pilot line to deployed fleet. **Engineering R&D** through development. **JDM** through pilot production. One accountable team across electronics, firmware, industrial design, mechanical, compliance, and supply.

MODEL	DEPTH	OUTPUT
Single accountable owner across electronics, firmware, industrial design, mechanical, testing, compliance, and pilot supply.	Real-world sensing, spatial intelligence, precision motion, wireless networks, IoT cloud, and the human-machine interface layered on top.	Products that are finished, certified, connected, and manufacturable at pilot through to commercial scale.

## 02 Manufacturing, Plant & Supply Chain

Facility Information	Supply Chain
<p><b>LOCATION</b> Whitefield, Bengaluru - <b>5,000 sq ft</b> premium end-to-end facility.</p> <p><b>CAPABILITY</b> Design, rapid prototyping, electronics, mechanical fab, assembly and QA — under one roof, owned by Lightcones.</p> <p><b>OUTPUT</b> Pilot supply <b>500–5,000 units / month</b> · SKD / CKD / FBU through JDM and the Indian CM partner network.</p> <p><b>PARTNERSHIPS</b> CM partner network for commercial-scale supply.</p>	<p><b>SOURCING</b> Asian and Western, both gears. Fluency across low-cost Asian silicon and module ecosystems — application processors, Custom RF/Wi-Fi/BLE modules, MEMS and imaging sensors, BLDC and stepper motors, lithium cells — and Western catalogue silicon for redundancy, safety-critical MCU, RF, power and analog.</p> <p><b>SPECIALIST</b> Direct vendor relationships across specialised component categories — Sensors, Motors, LiDAR, Optics, pre-certified Wi-Fi/BLE modules, custom battery packs with BMS, precision optics, valves and pumps, injection tooling and specialized PCBA</p> <p><b>THREE TIERS</b> Every component is mapped at three tiers — <b>bare silicon, ODM modules, drop-in subsystems</b> — before a tier is picked. We do not default; we map.</p> <p><b>FORENSICS</b> Teardown-grade BOM intelligence, cost-at-1K vs cost-at-100K curves, vendor-vs-market-vs-custom decomposition.</p> <p><b>DESIGN-IN</b> Dual-source on every critical part, locked at schematic and CAD. Make-in-India value-add planned at the design stage.</p>

## 03 ER&D Capability Stack

### Embedded Blocks

<b>ULP</b>	Ultra-Low Power. BMS architectures and energy-budget engineering for primary-cell and rechargeable devices.
<b>RF</b>	Custom RF & Wireless. Spectrum-aware design across short-, mid- and long-range networks. Multi-protocol coexistence; pre-compliance through wireless certification. Counter RF systems design.
<b>IOT</b>	IoT Device & Cloud Infra. One stack from boot ROM to fleet dashboard. Provisioning, telemetry, OTA, and remote ops as one engineered system.
<b>MOT</b>	Motion Control. Closed-loop actuation for ground, aerial and tabletop platforms. Drivetrains, gimbals, precision stages, and the safety harness.
<b>SEN</b>	Sensing & Spatial. Real-world signal capture and scene understanding — single-point sensors to multi-sensor spatial systems and the perception stack they feed.
<b>ML</b>	ML & Edge Intelligence. Perception, control and reinforcement pipelines that run on-device, edge or cloud. Production integration, not a notebook demo.

### Realisation Blocks

<b>RP</b>	Rapid Prototyping. Engineering thermoplastics, high-res photopolymer fabrication, composite parts; in-house sheet metal for aluminium and steel.
<b>EE</b>	Electronics Workbench. Schematic, layout, signal integrity, power distribution, EMI/EMC pre-compliance, board bring-up — under one workbench.
<b>OPT</b>	Optical & Precision Motion. Camera-pipeline integration, calibrated optical assemblies, and sub-millimetre motion subsystems for industrial and broadcast use.
<b>MFG</b>	In-house Manufacturing. Premium end-to-end facility, 5,000 sq ft, Whitefield. SKD / CKD / FBU supply at pilot through commercial scale.
<b>SCM</b>	Supply-Chain Engineering. East/West dual redundant component sourcing, BOM forensics, cost-curve modelling, dual-source design, Make-in-India value-add — owned at the design stage.

## 04 Value-Added Services

On-top capabilities a contract design house cannot offer.

<p><b>LC-SoM</b></p> <p><b>System-on-Module</b></p> <p>Pre-validated IoT compute and connectivity module with SDK and reference firmware. Cuts 12–16 weeks off the device critical path.</p>	<p><b>IOTA PaaS</b></p> <p><b>Managed IoT Cloud</b></p> <p>Provisioning, telemetry, OTA, user &amp; operator dashboards delivered to the deployed fleet, independent of the OEM's cloud team.</p>	<p><b>Compliance</b></p> <p><b>Certification Closure</b></p> <p>BIS, EMI/EMC, WPC, RoHS, EN71, child data privacy, ISO 13485-ready quality, CE / FCC / CPC export-market closure.</p>	<p><b>IP Desk</b></p> <p><b>IP Engineering &amp; Filings</b></p> <p>Patentable subject-matter identification at the architecture stage, prior-art and FTO scans, claim-strategy support, filing coordination with partner IP counsel.</p>	<p><b>Engagement</b></p> <p><b>Commercial Models</b></p> <p>Milestone- and outcome-based pricing, joint IP development and joint-holding, clean full-IP-transfer where sole ownership is wanted. The model bends to the program.</p>
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05 **How We Engage**

A stage-gated lifecycle that flexes across consumer, medical, industrial, robotics, broadcast and regulated infrastructure programs — we plug in at the phase that fits the brief.

PHASE	ROLE	OUTPUT	ENGAGEMENT
Concept & Design Validation	ER&D	Locked architecture, costed bill-of-materials, working engineering sample.	Front-loaded for green-field programs; mid-stage entry for re-platforms.
Production Readiness	JDM	Manufacturable design, certification-ready, regulatory closure.	Joint with the partner factory and the OEM brand team.
Pilot & Launch Supply	ODM	500–5,000 units / month at pilot to commercial scale.	In-house line at Whitefield, plus partner contract manufacturers.
Post-Launch & Fleet Operations	PaaS	Cloud platform, over-the-air updates, telemetry, in-life fleet management.	Managed service delivered directly to the deployed fleet.

06 **Founder & Engineering Director**

**Siddharth Chinoy**

Managing Partner · Engineering Director

Computer Science B.Tech, M.Tech from IIT Bombay

12+ years across aerial and ground robotics, consumer electronics, IoT, broadcast and industrial automation.

Fellow, Startup Leadership Program · AWS Certified Solutions Architect — Professional (ML, Security, Data).

2024 – present	Lightcones Engineering · Managing Partner. JDM studio owning the full product lifecycle from electronics and firmware through compliance and pilot supply.
2022	Drone Federation of India · Honorary Audit Lead, National Drone Type-Certification panel (DRDO · QCI · DGCA · IAF). Authored the audit framework behind India’s first Type Certificate.
2022 – 2023	Mudrex · Vice President of Engineering. Founded and led the Capital Infrastructure division — one of the first cloud-native algorithmic HFT platforms for 24/7 crypto markets, multi-region Kubernetes co-located with exchanges, and FIPS 140-3-targeted confidential-computing wallets for the consumer app.
2017 – 2020	Quidich Innovation Labs · CTO. Scaled the company from niche aerial cinematography to a multi-product broadcast-tech suite trusted by BCCI, ICC, Star Sports, and top Bollywood studios.
2014 – 2015	Embryyo Technologies · Co-founder & Chief Engineer. Three first-of-their-kind medical devices to bench in eighteen months under an ISO 13485-ready quality system. CII Top-10 Innovative Start-up.
2012 – 2014	Sony HQ, Tokyo · Audio Products Design Engineer, AVR line. Lead firmware engineer on the common RF and network stack across the STR-DN and ES receiver families.

07 **Track Record**

**01 Consumer, Audio & Medical Devices**

- Networked audio-video receivers shipped at global scale through Sony’s STR-DN mid-range and ES line — primary firmware engineer on the common RF / network stack that delivered built-in Wi-Fi, Bluetooth, AirPlay and NFC pairing without add-on dongles. Industry-first out-of-box streaming at the \$500 price tier.
- Secure home-automation bridge for the STR-DA2800ES / 5800ES — co-designed with Sony’s ES platform team and Control4’s SDK group; shipped as the “built-in Control4” feature on Sony Premium Home. Early 4K HDMI pipeline and 8-port GbE+PoE switch architecture put the portfolio two model cycles ahead.
- Three first-of-their-kind medical devices to bench in eighteen months under an ISO 13485-ready quality system — BoxRx TB-drug-adherence (sensor strip + BLE gateway + cloud SMS) and the first Biliscope non-invasive bilirubin-meter prototypes. CII Top-10 Innovative Start-up.

**02 Robotics, Drones & Type Certification**

- World-first real-time Sports Drone AR system for broadcast-grade aerial cameras, produced and shipped across international tournaments and feature-film productions.
- Precision Drone and AGV robotic camera rigs with production grade movie cameras— India’s only five-axis low-angle robotic dolly;
- Multi-protocol wireless integration for live broadcast — RF-secure COFDM HD down-links, 5-axis IP workflow, cross-border multi-agency airspace clearances under COVID-era bio-bubble operations.
- Honorary Audit Lead on India’s national drone Type Certification panel (DFI · DRDO · QCI · DGCA · IAF). Drafted the 140-point design-safety checklist and the risk-based flight-test matrix; compressed the 75-day statutory cycle to 34 days on India’s first type-certified airframe.

**03 Broadcast, Sports & Spatial AR**

- World-first broadcast-grade live AR on a drone feed — real-time graphics co-registered to a moving aerial camera, integrated with broadcast scoring data.
- Robotic camera platform spanning aerial (CopterQam), ground (BuggyQam, 5-axis stabilised, all-terrain) and real-time player tracking; RF-secure COFDM HD down-links across a common firmware codebase.
- 3,000+ broadcast days, 350+ film projects, 18+ countries — for ICC, BCCI, IPL, Star Sports, Sunset+Vine, Sony, BBC, Discovery. , 300M+ viewers, 28% viewership surge.

**04 Cloud, GIS & Infrastructure**

- IOTA cloud platform — provisioning, telemetry, OTA, fleet operations and white-labelled companion apps as a managed service.
- Stood up Mudrex Capital Infrastructure as VP Engineering — one of the first cloud-native algorithmic high-frequency-trading stacks for 24/7 blockchain markets, a GitOps multi-region Kubernetes fleet co-located with exchanges, and FIPS 140-3-targeted confidential-computing self-custody wallets for the consumer app. Microservices, automated exchange-API lifecycle, real-time on-chain pipelines for derivatives, market-making and arbitrage strategies.
- “Control-room in a box” for distributed broadcast operations — engineers in Mumbai running rigs in the UAE during COVID bio-bubbles; vision-led safety telemetry for every airframe.
- Mission-critical software systems across high-frequency trading, GIS for energy and construction, healthcare, mobility and sports analytics — delivered across four continents.

