PREDICTABLE DESIGNS

10 TECHNOLOGIES YOU MUST AVOID IN YOUR PRODUCT

TECHNOLOGY #10

High-End Application Processors

Confirm need ☑☒

Do you need smartphone-level compute + graphics?

Risk check ☑☒

Locked docs, NDAs, large MOQs, buggy drivers, complex software stacks.

Safer alternatives: ☑☒

STM32/ESP32, Raspberry Pi Compute Module, NXP i.MX series.

Action: ☑☒

Prototype with accessible MCU/SoC; only move to APs with vendor support + volume.

TECHNOLOGY #9

Custom RF Designs (Sub-GHz)

Confirm need ☑☒

Is sub-GHz custom RF truly required?

Risk check ☑☒

Antenna design, tuning, FCC/CE testing, sensitivity to layout/enclosure.

Safer alternatives: ☑☒

Certified modules with pre-tuned antennas (Wi-Fi, Bluetooth, Zigbee, LoRa).

Action: ☑☒

Start with certified RF modules; validate in real enclosures before scaling.

TECHNOLOGY #8

Custom Battery Packs & Chemistries

Confirm need ☑☒

Is custom shape/chemistry unavoidable?

Risk check ☑☒

Safety + transport certification, supplier traceability, long delays.

Safer alternatives: ☑☒

Pre-certified Li-Po/Li-ion packs, coin cells.

Action: ☑☒

Fit off-the-shelf battery packs; custom only if space demands + budgeted testing.

TECHNOLOGY #7

Advanced USB Features

Confirm need ☑☒

Do you need >480 Mbps or >5V/2A power negotiation?

Risk check ☑☒

High-speed routing, impedance control, PD controllers & firmware.

Safer alternatives: ☑☒

USB 2.0 (480 Mbps), simple 5V charging, DC barrel jack.

Action: ☑☒

Use USB 2.0 for data + standard power unless PD is truly required.

TECHNOLOGY #6

Wireless Charging

Confirm need ☑☒

Is wireless charging critical to product appeal?

Risk check ☑☒

Coil alignment, heat, EMI, Qi certification costs.

Safer alternatives: ☑☒

USB-C, pogo pins, magnetic dock.

Action: ☑☒

Prototype wired first; only add wireless if strong customer demand exists.

TECHNOLOGY #5

Proprietary / High-Speed Connectors

Confirm need ☑☒

Is the proprietary/high-speed connector mandatory?

Risk check ☑☒

Licensing (MFi), restricted docs, expensive test setups.

Safer alternatives: ☑☒

USB, HDMI, SPI, I²C, LVDS (widely supported standards).

Action: ☑☒

Stick to standard connectors; add adapters later if high-speed needed.

TECHNOLOGY #4

Fancy Displays (AMOLED, MIPI-DSI)

Confirm need ☑☒

Do you need smartphone-level visuals or just functional UI?t

Risk check ☑☒

MIPI DSI forces high-end processors; displays are costly + short supply life.

Safer alternatives: ☑☒

TFT LCDs with SPI or parallel RGB from stable suppliers.

Action: ☑☒

Prototype with TFT LCD; use AMOLED only in high-volume, high-budget projects.

TECHNOLOGY #3

High-End Analog Audio

Confirm need ☑☒

Is audiophile-grade analog performance essential?

Risk check ☑☒

Grounding, shielding, layout, and test equipment requirements.

Safer alternatives: ☑☒

Digital audio (USB, I²S, Bluetooth), or vendor reference analog design.

Action: ☑☒

Start with codec modules or reference circuits/avoid custom analog unless expert-led.

TECHNOLOGY #2

5G / Cutting-Edge Cellular Modules

Confirm need ☑☒

Do you require sustained high throughput or low latency?

Risk check ☑☒

Expensive modules, SIM provisioning, thermal design, carrier approvals

Safer alternatives: ☑☒

LTE Cat-M1, NB-IoT, or 4G pre-certified modules.

Action: ☑☒

Prototype with LTE/NB-IoT first; only move to 5G if absolutely necessary.

TECHNOLOGY #1

Custom IC Design

Confirm need ☑☒

Is extreme integration/volume truly required?

Risk check ☑☒

Huge NRE, mask costs, long lead times, specialized engineers.

Safer alternatives: ☑☒

Huge NRE, mask costs, long lead times, specialized engineers.

Action: ☑☒

Use off-the-shelf chips; consider custom IC only after scaling + major funding

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Meet your guide: John Teel

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