

# Company Profile

AROX

AROX.COM

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Different  
by design

Lower Power.  
Better Performance.  
More Possibilities.

# Arox: Born in 2022, built for Innovation.

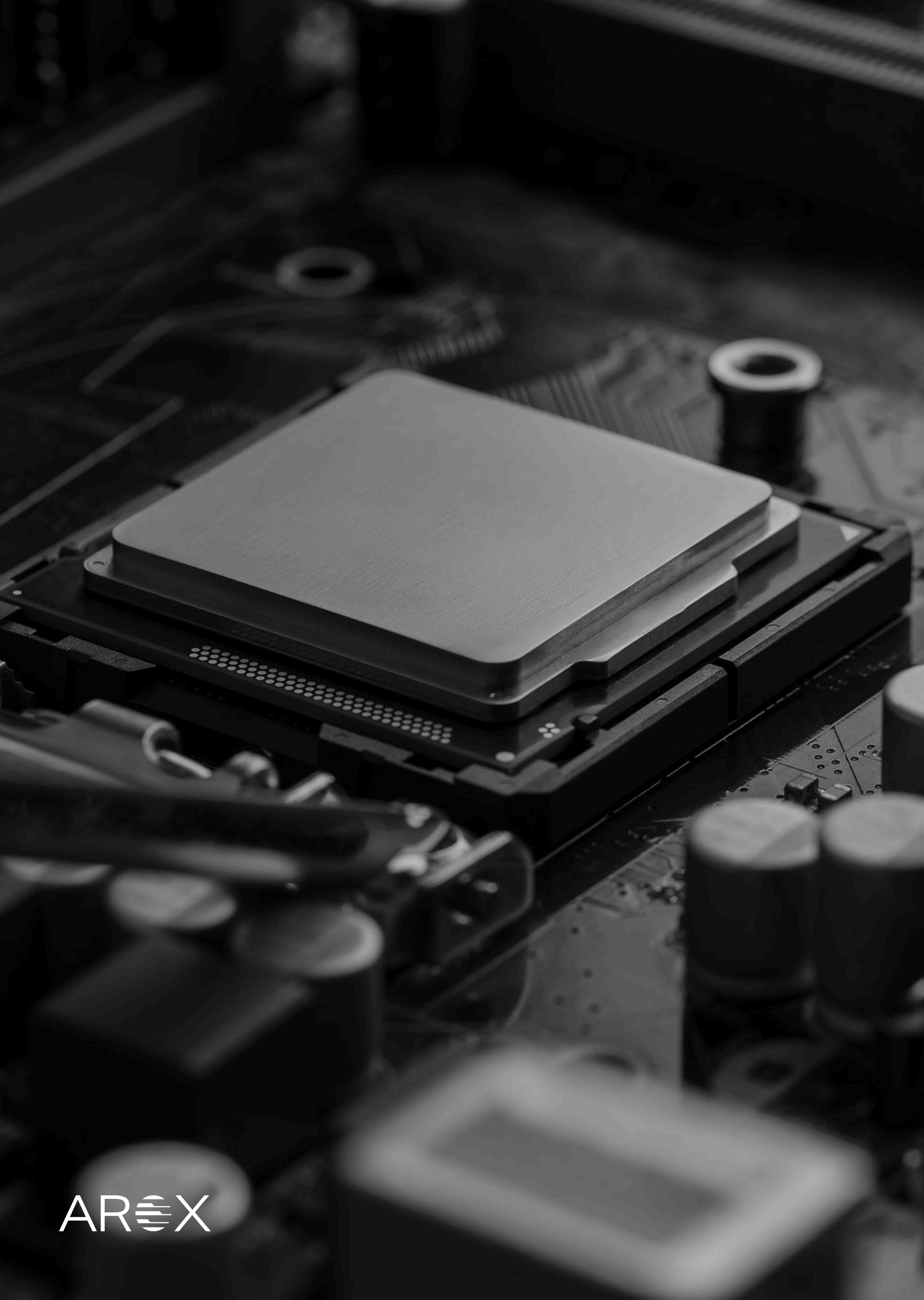
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Established to advance the IoT market, Arox focuses on both hardware and software design. Our core mission is to define a new concept of Ultra Low Power through dedicated research and development of System on Chip / ASIC solutions. **A new standard in energy efficiency is emerging.**

VISION

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Leading a shift in the  
semiconductor industry  
with a visionary design  
approach.



# R&D

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**Advancing low-power electronics** to overcome bottlenecks and deliver innovative solutions.

**Ultra-Low-Power application IPs**, designed at gate level, ensure the highest possible optimization in power and area.

**Pioneering research** in power supply techniques that leverage energy harvesting to eliminate batteries from IoT devices.

# AX-E0

## ASIC Design

AX-E0 is the result of System-On-Chip research and development to define a new concept of Ultra Low Power for modern microcontrollers.

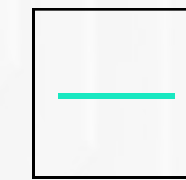
# 10x lower power



**Ultra Low Power custom CPU Leonardo architecture.**

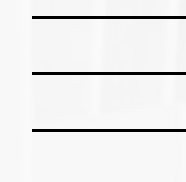
Up to 10x lower power consumption with the same performance of the best embedded processors on the market in its class.

# No battery anymore



**AX-E0 can be completely self-powered exploiting energy harvesting.** No batteries means no maintenance and lower environmental impact.

# Size matter



**The extreme optimization of each component inside the SoC brings AX-E0 to be suitable for any IoT system.** The few gate count allows for a small occupied area and consequently negligible static power dissipation.

# AX-E0 Hardware Specs

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Maximum Frequency up to 32 MHz

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Ultra Low Power custom CPU Leonardo architecture

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Up to 10x lower power consumption

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UART, SPI and I2C interfaces

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Up to 32 interrupts with 4 dynamically reprogrammable priority

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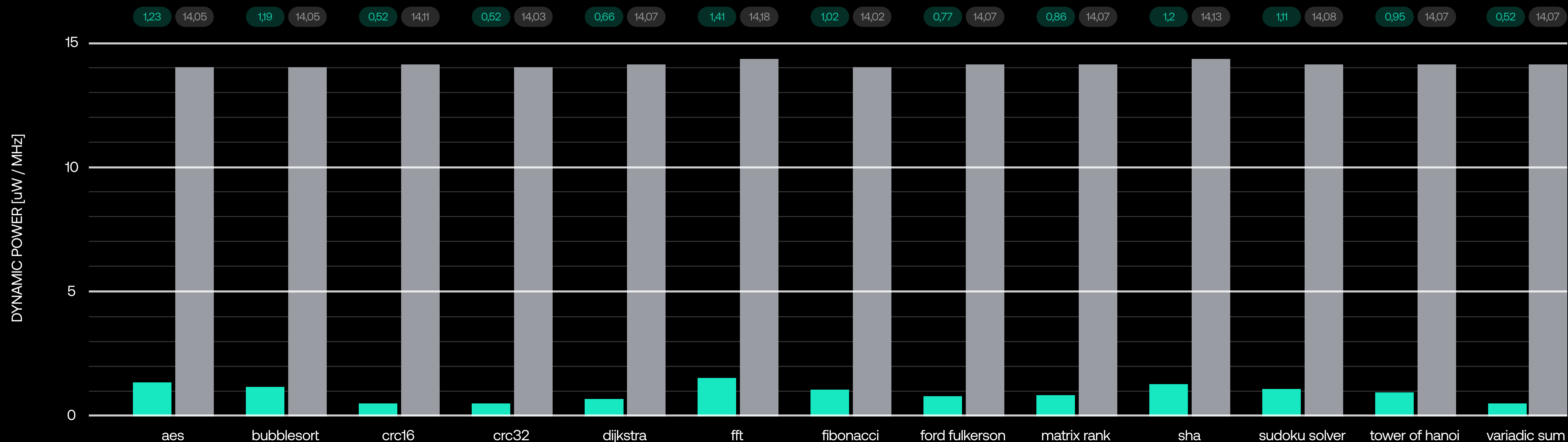
Low latency DMA communication

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# AX-E0 Power Consumption

40LP typical 1.1V, 25 °C



Leonardo CPU

cv32e40p (ri5cy)

# Specific use cases

AX-E0 can be easily integrated into a wide range of solutions due to its extremely low power consumption and extensive versatility.

# IoT Utilities

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Smart metering and remote monitoring systems for electricity, gas, and water networks requiring:

- Efficient data collection and transmission
- Minimal maintenance
- Long operational life



# Wellbeing

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Wearable health and fitness devices, such as activity trackers, medical monitoring and smart clothing, requiring:

- Continuous monitoring with minimal energy consumption
- Minimal maintenance
- Long operational life



# Smart Cities

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Infrastructure devices such as sensor networks for traffic management, air quality monitoring, public lighting systems, and transportation infrastructure requiring:

- Reliable, energy-efficient data transmission
- Minimal intervention
- Energy Harvesting option

# AX-E0 Applications

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## Space, Smart Mobility and Defence

Small and low-cost satellites where the heavy battery and power supplies can be replaced. Full control and auditability of the design for safe and secure-critical applications.



## Battery Management System

Voltage, current and temperature control guarantees the safety of users, while making sure they get the most out of their battery-powered devices.



## Ambient Intelligence

Small, low-power, low weight device with the ability to interact with each other.

- Smart building
- Security System

# AX-E0 Applications

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## Monitoring System (MS)

Collect and analyze data received from sensors for conditional maintenance, ensuring better management in situations of wear and tear or malfunction.

- Tire Pressure MS
- Structural Health MS
- Self powered through Energy Harvesting



## RFID

RFID allow objects to be identified and information to be saved and updated.

- **Traceability in supply chain**
- **Logistics and inventories in the retail industry**



## Wearables

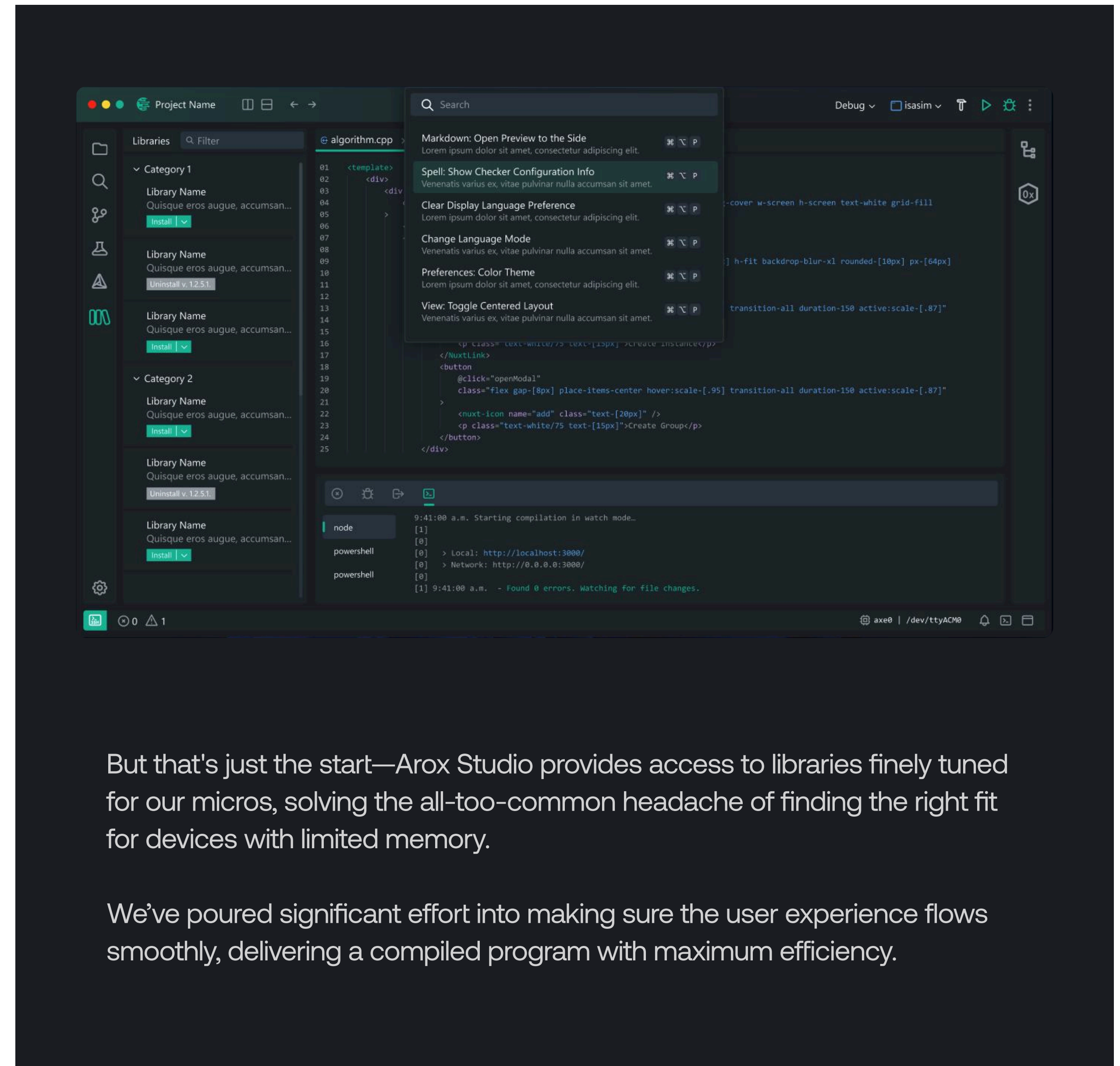
Wearables can be leveraged to collect data on users' behavioral patterns.

- Fitness tracking
- Medical monitoring
- Smart clothing

# Arox Studio

Arox Studio is our proprietary software for programming our microcontrollers. At its core lies a compiler we've meticulously crafted with custom optimizations, generating code that's efficient in both memory usage and power consumption.

The result? A seamless interplay between software and hardware, pushing efficiency to its limits.



But that's just the start—Arox Studio provides access to libraries finely tuned for our micros, solving the all-too-common headache of finding the right fit for devices with limited memory.

We've poured significant effort into making sure the user experience flows smoothly, delivering a compiled program with maximum efficiency.



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