C3 MEDTECH INNOVATIONS

CASE STUDY

ACHAEMENID INNOVATIONS

iNOS Intraoral Biosensor

An intraoral biosensor small enough to sleep in, FDA cleared in 2026



CLIENT	FOCUS	C3 SCOPE	STATUS
Achaemenid Innovations	Overnight sleep monitoring	Electronics, firmware, app, charging	FDA 510(k) cleared

The challenge

Reza Radmand, the founder of Achaemenid Innovations, is a sleep specialist. He spent years watching patients struggle with the standard path for evaluating obstructive sleep apnea.

Collecting good physiological data across a full night is harder than it sounds. The equipment that does it is bulky and unfamiliar, and it interferes with the thing it is measuring. Patients do not sleep normally wearing it.

Achaemenid's answer was to put the sensor inside a custom oral appliance, somewhere patients already tolerate all night. Testing with off-the-shelf parts proved nothing available was practical to wear through a full night. They needed a fully custom device.

What C3 delivered

C3 built the electronics, firmware, companion app and wireless charging. Achaemenid owned the oral appliance and its housing.

Size drove every decision. The board had to **bend around the jaw line**, and nothing could break the surface: no wires, no buttons, no charging pins, no USB. Power arrives through a wireless cradle, data leaves over Bluetooth.

Power management decided the rest. The device runs a full sleep cycle on one charge while capturing SpO2, heart rate and 6-axis motion, a heavier load than a smart ring carries from a smaller package. On-board memory covers Bluetooth dropouts, so nothing is lost.

The app was the hard part. A full night of continuous data has to leave the device without losing any of it, while the volume fights the encryption and both fight the power budget. C3 built the app that carries all three, and completed the verification and validation testing, the FDA documentation and the cybersecurity assessment.

THE RESULT

FDA 510(k) clearance, now ramping toward 10,000 to 25,000 units