Innowave

Your IoT and RF Design Partner

Transforming ideas into amazing products

Innowave is at the leading edge of design innovations in smaller, smarter and longer-lasting connected devices. Founded in 2015 with deep knowledge of embedded systems, RF and mechanical design, we specialize in miniaturizing circuits and products, designing products with a longer battery life, and in producing co-located multi-technology wireless devices that meet regulatory requirements. We also do radio designs and radio components design.

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Five Ways We Can Help You

1

EMBEDDED SYSTEM or IOT PRODUCT DESIGN SERVICES

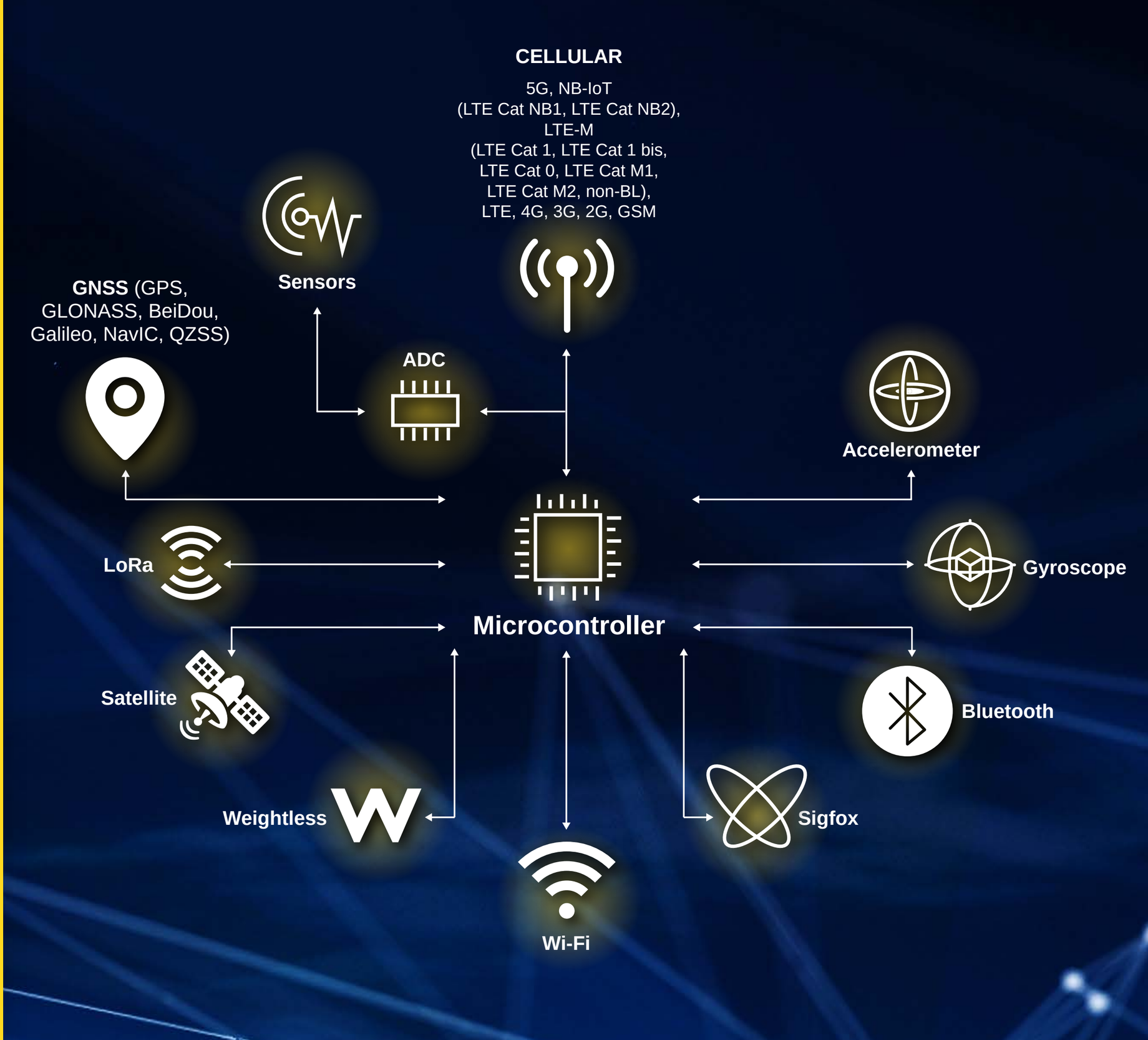
HARDWARE PRODUCT DESIGN CYCLE

- System architecture, hardware, and software/firmware design based on customer requirements.
- Schematic and Printed Circuit Board (PCB) design using Altium Designer.
- RF and EM Simulation using Keysight ADS to ensure designs meet performance and regulatory requirements.
- Industrial and mechanical (product enclosure) design.
- Fast PCB fabrication and building due to our ecosystem partners.
- Product testing, optimization, and measurement.
- Pilot production.

We drastically cut development costs with single-pass development. Our RF and digital design experts have achieved this numerous times. We are able to attain single-pass development by heavily relying on simulation. In the past, excellent correlations were achieved between measurement and simulation.

Placing multiple modules and sensors close to each other, interference between the modules and the sensors will create EMC/EMI issues. Innowave has also filed patents on the method of co-locating multiple radios and sensors without creating EMC/EMI issues.

We have designed many small devices with multiple radios and sensors located in close proximity to each other and certified them with FCC, CE, PTCRB, and other international regulatory bodies.



Five Ways We Can Help You

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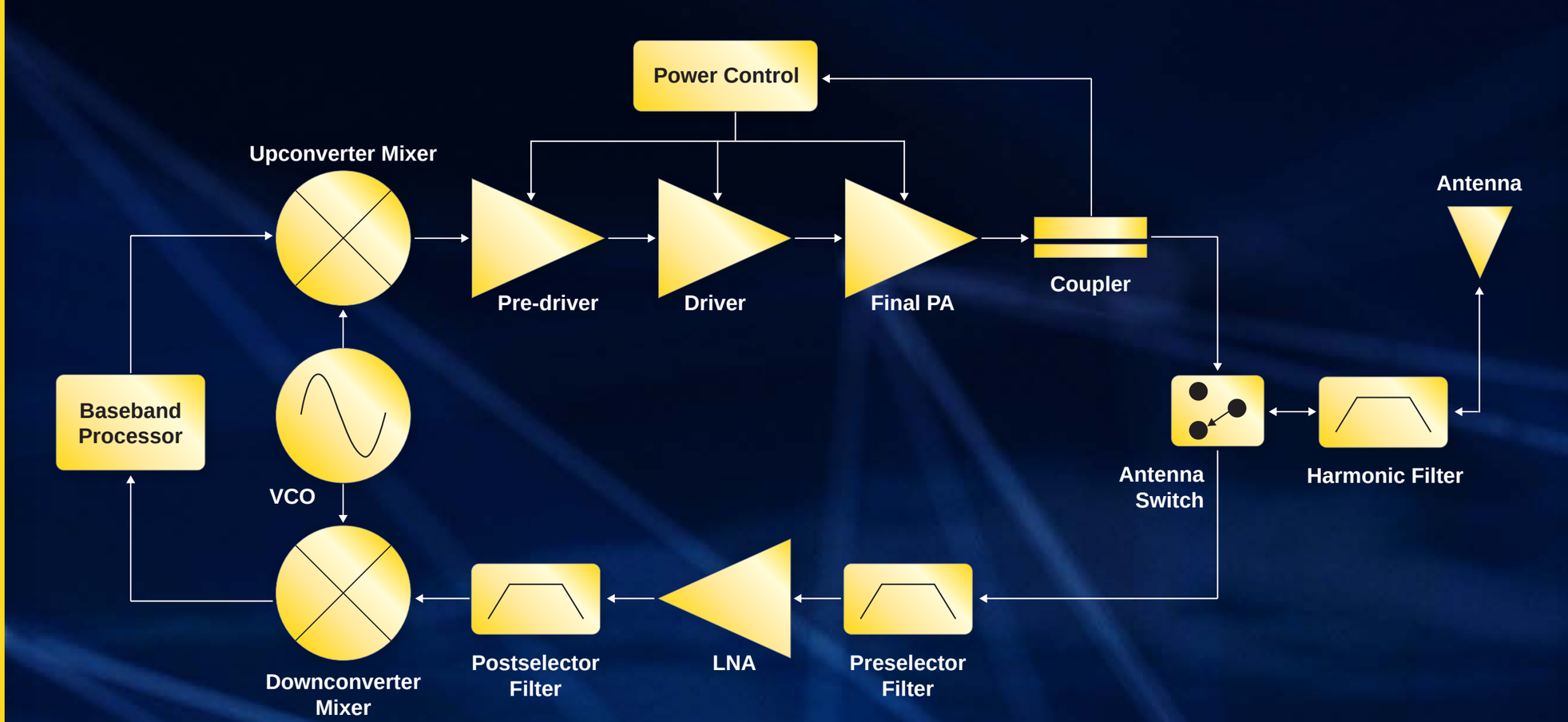
RF RADIO and RADIO COMPONENTS DESIGN SERVICES

A strong ecosystem of partners complements our expertise in RF Designs to handle small and large volume production. We provide component and System-level RF design services using Keysight ADS. We follow a structured design methodology to design each radio and radio component based on our years of design experience.

We provide RF Radio design services, including Transmitter, Receiver, and complete radio Design Services. In the past, we have done design for multinational companies in which we can share their testimonials upon signing the NDA.

We also do customized radio components design. The radios components we have designed in the past are antennas, up-conversion mixer, down-conversion mixer, Voltage Controlled Oscillator (VCO), Local Oscillator (LO) or Frequency Generating Unit (FGU), pre-driver, driver, final Power Amplifier (PA), coupler, power controller, antenna switch, harmonic filter, pre-selector filter, Low Noise Amplifier (LNA) and post-selector filter, Wilkinson's power combiner, power combiner, and balun.



3

ANTENNA DESIGN SERVICES

ANTENNA DESIGN CYCLE

- Antenna design and simulation using Keysight ADS to verify the frequency of operation, return loss, and input impedance.
- Antenna Simulation using Keysight ADS to verify antenna far-field parameters such as Radiation Pattern, Gain, and Efficiency.
- Fast antenna fabrication.
- Antenna measurement and validation.
- Pilot production.

ANTENNA MINIATURIZATION

IoT developers and antenna designers will often find themselves in a challenging position when optimizing the size of their products since miniaturization degrades an antenna's performance due to wavelength limitations.

Our patents and previous work specifically address antenna miniaturization by overcoming theoretical limitations without compromising the performance.

We are publishing Youtube videos on educating RF designers around the world on radio design and simulation:
https://www.youtube.com/c/InnowaveIoT

Five Ways We Can Help You

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PRODUCT CERTIFICATION

Stringent regulatory requirements have the effect of weeding out most IoT developers trying to bring new products to market.

Innowave's in-house expertise in certifying co-located multi-technology wireless products by solving design issues cost effectively is a major differentiator and value proposition to our clients.

REGULATORY BODIES
FCC, IC, CE, PTCRB and GCF.

CELLULAR CERTIFICATION
5G, NB-IoT (LTE Cat NB1, LTE Cat NB2), LTE-M (LTE Cat 1, LTE Cat 1 bis, LTE Cat 0, LTE Cat M1, LTE Cat M2, non-BL), LTE, 4G, 3G, 2G, GSM

5

LICENSING OF IP

Our patents are available to enhance your design's competitive advantage in the market worldwide.

In addition to the company's 5 granted patents (6 others pending), the founders share over 60 US and international patents and more than 800 citations by companies including TI, Analog Devices, Cypress, Marvell, Boeing and Samsung.

Industry Expertise

Industrial
Healthcare
Consumer
Military
Communication
Solar Energy
Satellite Communication

Having executed design work for a major LEO constellation company, we are familiar with satellite-based communication systems, design of satellite radio and satellite antennas. Testimonials of our satisfied customers can be shared upon request and signing an Mutual Non Disclosure Agreements.

IoT products require special expertise that most companies lack in-house, which explains why over 3 out of 4 companies report these projects as either failing or far exceeding budget and time constraints.
Is your business one of them?