221e∞

PEOPLE
IDEAS
TECHNOLOGY

Digital Company Profile

SENSORS, APPLIED

**221e MEANS INFINITY, BECAUSE ENDLESS IS THE BOUNDARY OF IMAGINATION AND SO OF INNOVATION**

It takes the imagination of dreamers, the creativity of passionate minds and the experience of pioneers **to change established rules and extend the boundaries of what is possible**.

We surf the wave of **IoT** and **wearable systems**, merging advanced hardware designs with intelligent software architectures driven by an approach devoted to continuous **improvement**, solid engineering skills, curiosity and **passion** towards data and its science.

We embrace **diversification as opportunity**, pushing the company to new challenges and expanding business in different industries.

Our technologies are pervasively suitable to a wide range of applications.

We have a clear mission: the research, development and production of electronic systems **embedded with proprietary algorithms** to collect, elaborate and return **clear data ready to be used**.
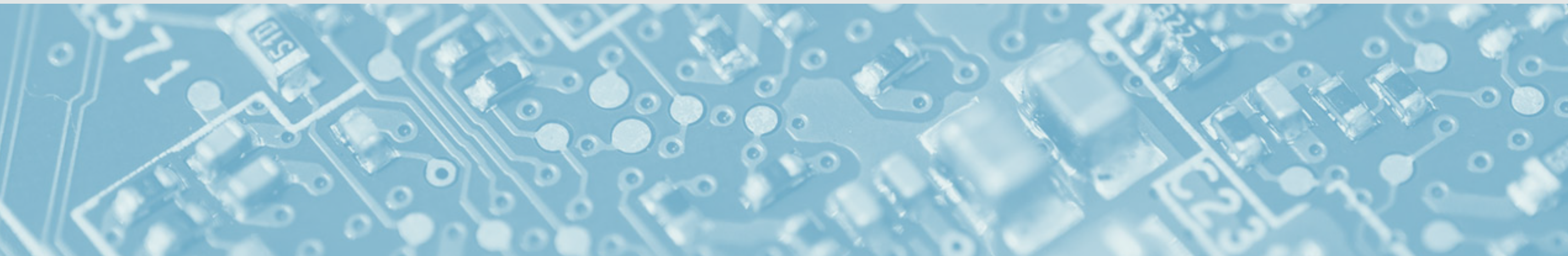
WE BUILD INTELLIGENT THINGS

Data is value: the foundation of intelligent systems, thus it has to be properly turned into **useful**, **secure** and **sustainable information**.

Our embedded systems' **added value** is the **technology** at their core, that allows to measure, process and communicate any data to meet the application requirements.

INTELLIGENT SYSTEMS

Algorithms

Hardware Platform
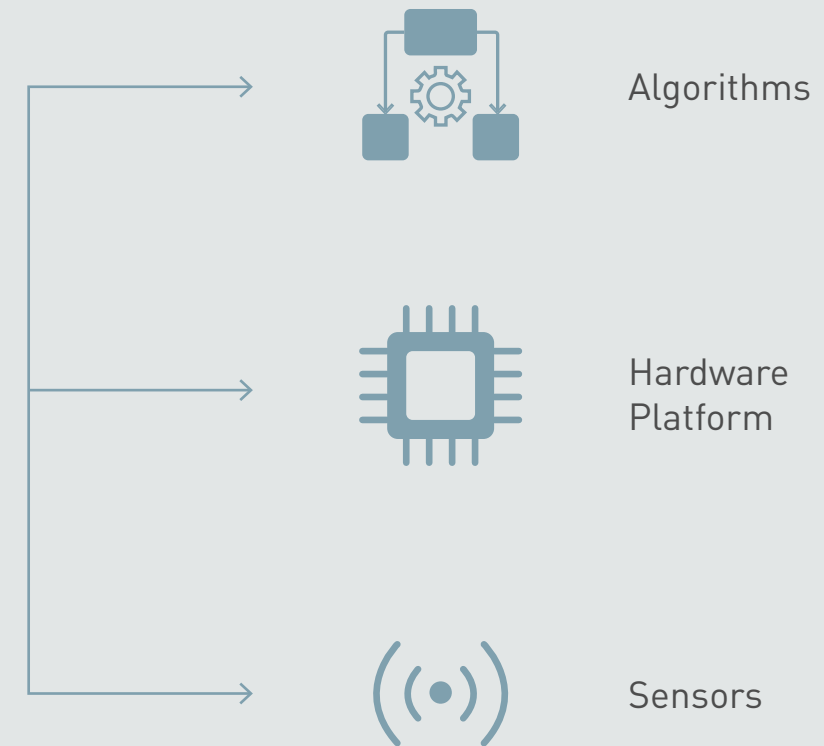
Sensors

IOT

■ **MARKET SNAPSHOTS**

With each passing day, the amount of data generated worldwide is **increasing exponentially** and with new devices, sensors and emerging technologies, the rate of data growth is likely to accelerate even more. **Acquiring data and making sense** out of it are key competitive factors in today's market.

Our embedded system solutions are developed to give answers to the increasing needs of data manipulation from the IOT world.

Robotics   Industrial Automation   Smart Cities   Automotive & Transportation   Oil & Gas

DATA PROCESSING ALGORITHMS

WEARABLES

■ **MARKET SNAPSHOTS**

Wearable devices can give countless advantages in areas ranging from healthcare, sport and lifestyle to safety, robotics, industrial automation and gaming.
Tomorrow's challenges will increasingly be based on **data accuracy**, **extreme miniaturization** and **low energy consumption**.
Our plug & play products can monitor features related to force, pressure, direction, speed, temperature as well as biopotentials such as respiration and heart rate with a focus on **obtaining precise information and ensuring the highest standards**.

Our solutions facilitate the work of data scientists, researchers, makers, engineers and pioneers worldwide who are paving the way for new wearable sensors.
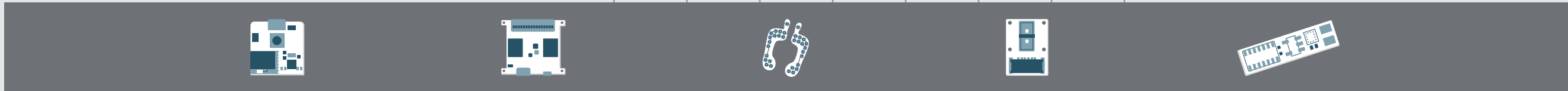
Protective Equipment   Biomedical   Athletic Performance   Gaming   Fashion & Advertising

DATA PROCESSING ALGORITHMS

ECOSYSTEM OF SOLUTIONS

Vertical markets

■ INTELLIGENT SYSTEMS

Product
Integrations

■ APPLICATIONS

Inertial systems (WEAR)	Inertial systems (THINGS)	Biosignals	Environmental monitoring	Automation
Body motion tracking	Navigation	Electrocardiogram	Ambient monitoring	Industrial machinery control
Sports science	Vehicle dynamics	Heart rate	Safety parameters	Indoor / Outdoor localization
Biomechanics research	Driving style recognition	Respiration	Alert management	Predictive maintenance
Rehabilitation	UAV flight controller	Body temperature	Waste management	Proximity mesurement
Medical protocols	Stabilization platform (gimbal)	Stress	Smog detection	Robotics
Ergonomics	Motion control	Hydration	Water management	Motion control
Gait analysis	Vibration monitoring	Force and pressure	Fleet management	M to M comunication
Actigraphy		Movement and posture	Power consumption	Cloud Data Processing

System
Integrations

■ ENABLING TECHNOLOGIES

NB-IoT   WiFi   aws   android   iOS   STM32

Bluetooth   LoRa   Azure   Windows   Cortex
Intelligent Processors by ARM

Radio Connectivity   Cloud technologies   Operating systems   MCU architecture
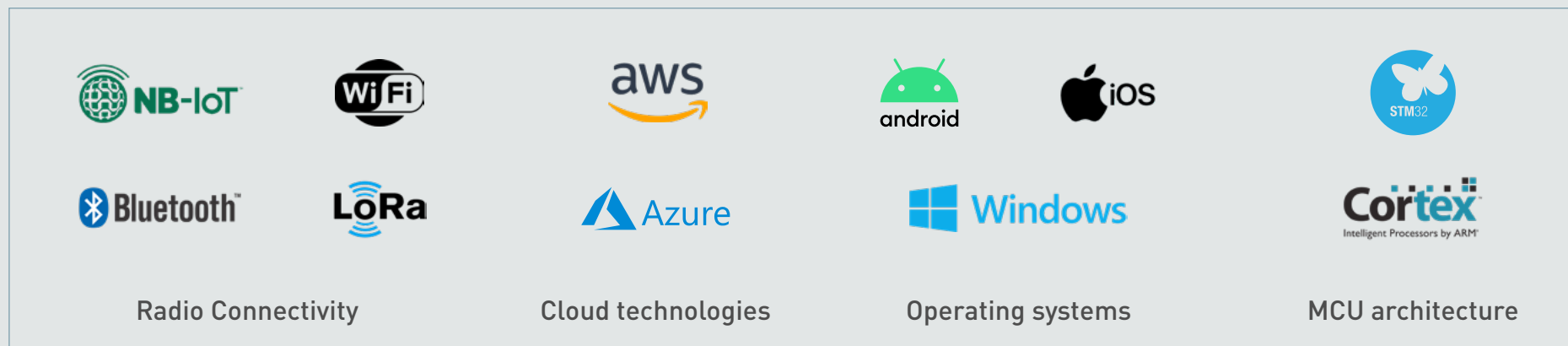
■ SENSORS

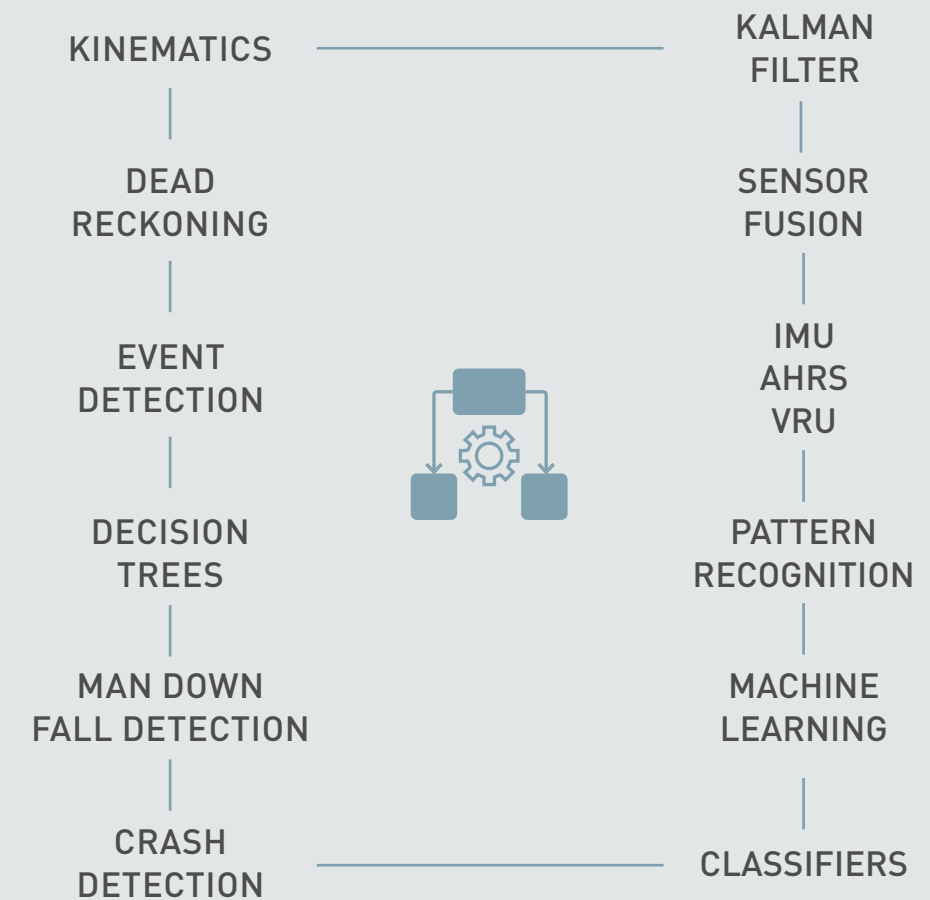| Inertial sensors	Energy harvesting
Distance sensors	Pressure sensors
Air quality sensors	ECG PPG GSR
GAS sensors	EDA EEG EMG

ALGORITHMS

WE ARE LEADER IN DIGITAL SIGNAL PROCESSING, EVENT DETECTION AND PATTERN RECOGNITION.

Our proprietary algorithms are the foundation of **embedded real time applications**, where sensors data is processed online for the detection of specific conditions and the execution of proper actions. Algorithms combined with our hardware devices provide **intelligent systems**.

Bottom-up capabilities allow 221e to optimize data management by using distributed AI within nodes, edge and cloud, based on a fully modular architecture.

Internal development of algorithms based on the following features:

KINEMATICS — KALMAN FILTER

DEAD RECKONING — SENSOR FUSION

EVENT DETECTION — IMU AHRS VRU

DECISION TREES — PATTERN RECOGNITION

MAN DOWN FALL DETECTION — MACHINE LEARNING
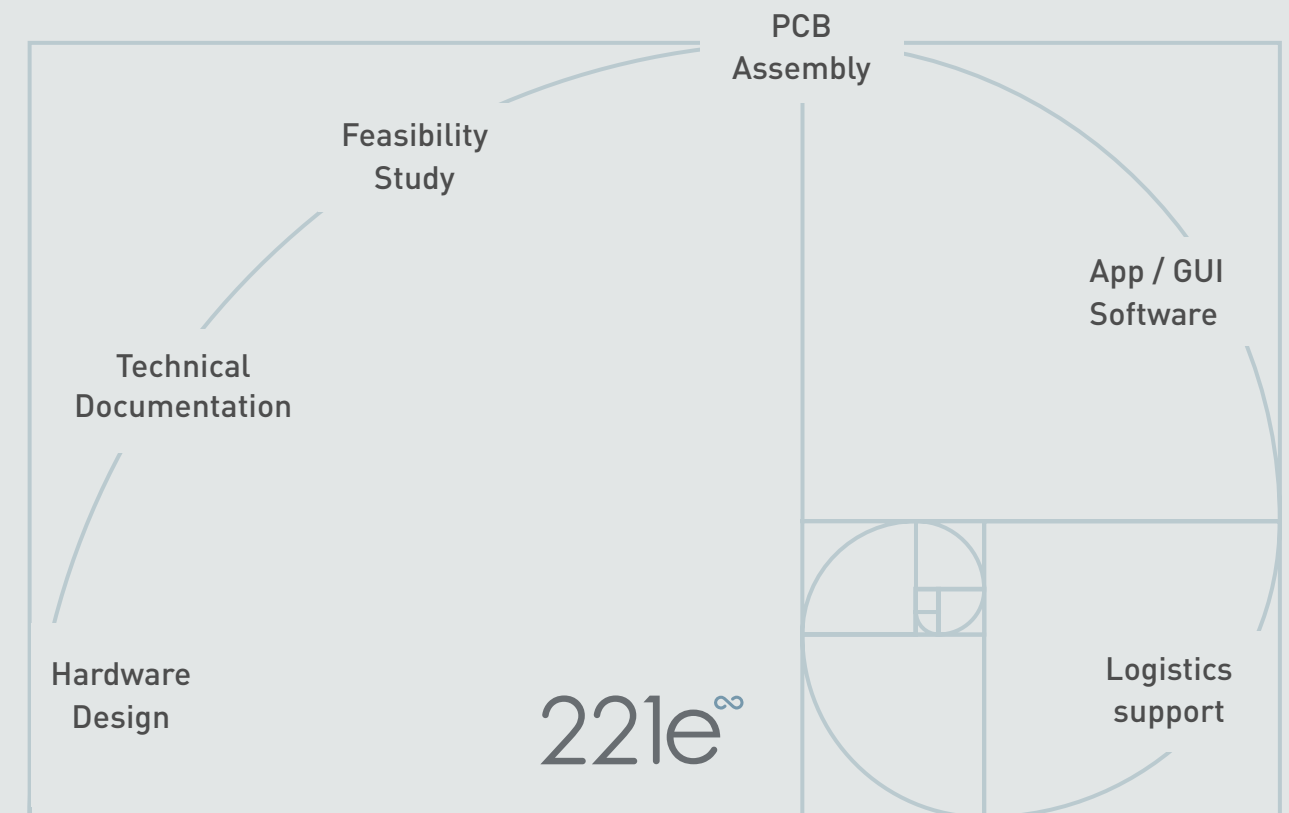
CRASH DETECTION — CLASSIFIERS

CUSTOM SERVICES

WE ARE STRUCTURED TO PROVIDE COMPLETE SUPPORT

221e operates alongside innovative brands sharing this special journey in history when the occasion for something completely new has come. For the first time, applied sensors make it possible to **observe and perceive our world** and our interactions, empowering the data economy and enabling the digitalization of society.

Our hardware and software capabilities can cover the most challenging project requirements. **Full service: trusted processes and methods ensure quality, performance and time to market.**

PCB
Assembly

Feasibility
Study

App / GUI
Software

Technical
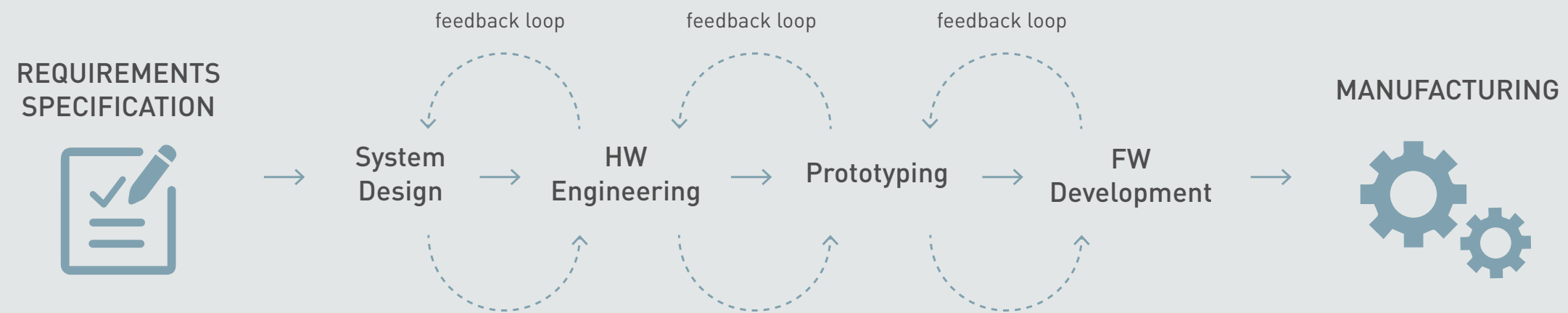Documentation

Hardware
Design

Logistics
support

221e∞

ADDED VALUE

OUR ADDED VALUE IS KNOWLEDGE IN ALGORITHM MODELING, ELECTRONICS ENGINEERING
AND SYSTEM DESIGN FROM INITIAL CONCEPT TO TURN-KEY SOLUTIONS

feedback loop   feedback loop   feedback loop

REQUIREMENTS
SPECIFICATION

System
Design

HW
Engineering

Prototyping

FW
Development

MANUFACTURING

221e∞

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Explore our Products

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