

CASE STUDY

ANIMAL TRACKING THROUGH RFID IN AGRITECH

*Monitor data proactively,
prevent theft, and boost agricultural
efficiency with smart IoT devices.*

softserve

Smart farming and precision agriculture are slowly becoming the new norm. With tons of agricultural data available, collecting and monitoring it to take better control over resources and operations is more crucial than ever. Technologies such as IoT help businesses streamline the collection, inspection, and overall distribution of agricultural resources based on real-time sensor data. This eventually leads to increased productivity, reduced costs, and risks.

Consider this success story.

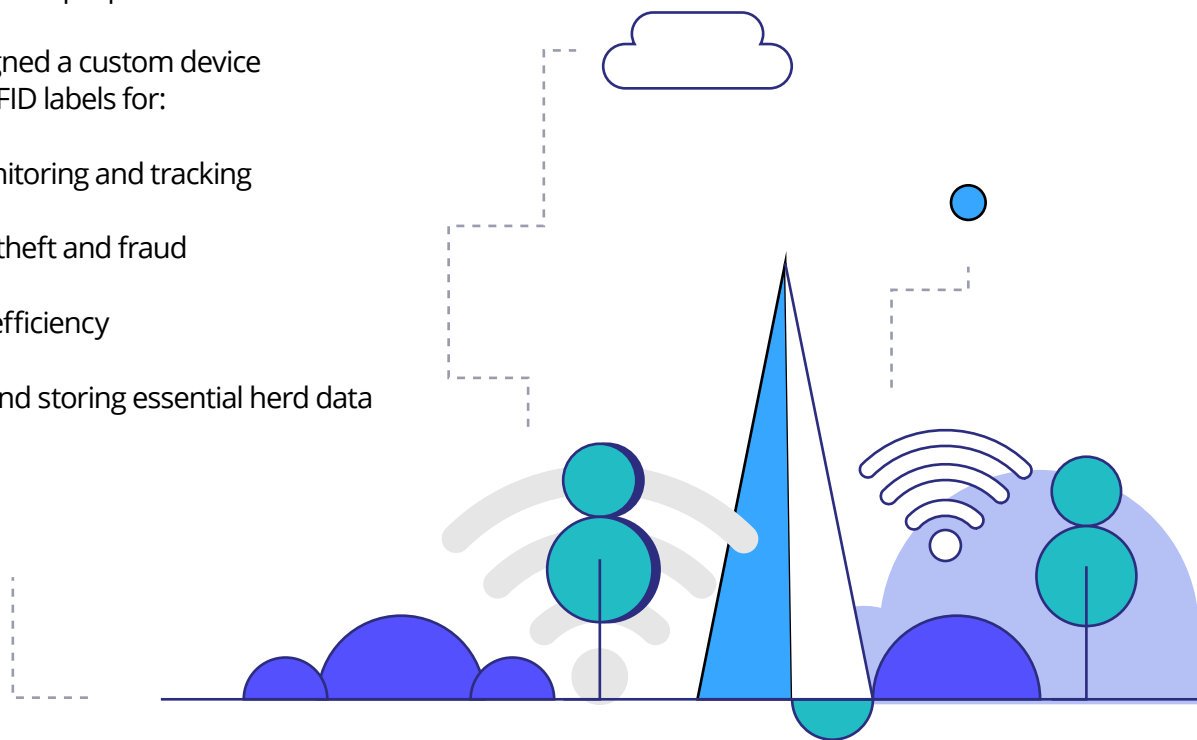
Our client—a US provider of agricultural technology and data solutions for the food supply chain—required a disruptive and innovative solution to track and manage high volumes of herd animals. The company's livestock tracking system utilizes smart tags and readers to generate data for operational purposes.

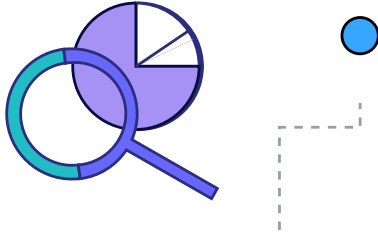
SoftServe designed a custom device to scan cattle RFID labels for:

- Animal monitoring and tracking
- Preventing theft and fraud
- Increasing efficiency
- Collecting and storing essential herd data

Here's how it works. The device scans the RFID tags attached to animals and sends data via Bluetooth to a mobile phone. Data is gathered on the device and sent whenever a Bluetooth connection is available. The mobile phone application controls the RFID devices and sessions, collects data, and sends it to the cloud whenever the latter is available.

For the device upgrade, our team implemented an over-the-air firmware update. As a result, SoftServe's solution enables an RFID scan speed of **approximately 400 scans per second, achieving 99% accuracy.**





During the project, SoftServe faced the following challenges:

- Tight schedule
- Lack of hardware prototyping facilities
- Device performance in rural areas with a lack of power and connectivity options
- Support and integration internationally
- No delivery and customs clearance experience outside of the USA

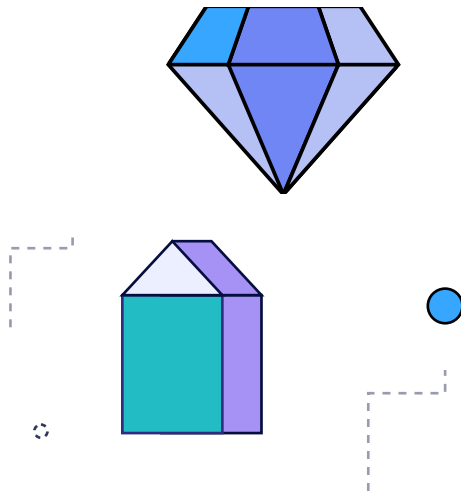
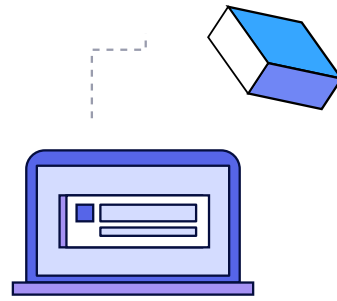
To address these challenges, our team:

- Conducted an IoT Workshop to identify problem, solution constraints, and concept validation criteria
- Selected best-in-class technology for fast prototyping and concept validation
- Executed iterative development with continuous in-field testing to minimize time-to-market for the minimum viable product (MVP)
- Substantially re-used COTS components to reduce time-to-market for MVP
- Developed IP67 and Li-On battery-powered RFID device for up to one week of autonomous work
- Advanced procurement and logistics planning
- Scheduled management with the planning of lags and components delivery



Tools and Technologies

- Particle Development Kits
- High-speed RFID module
- Nordic BLE
- Zephyr OS
- Flutter Blue
- PCB design and manufacturing
- SMT Assembly

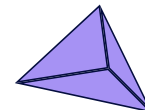


The delivered value included:

- A successful pilot within an aggressive schedule to scale integrations with committed end-users
- A pilot series for future improvements based on end-user feedback
- Validated use cases within the developed hardware revisions
- An in-field showcase, bringing new clients and more traction
- Compliance readiness for FCC certifications

Looking for smart and cost-effective way to automate routine workflows and deliver increased value to your customers?

LET'S TALK about how SoftServe can empower you with an intelligent chatbot solution—specifically tailored for your business needs.



ABOUT US

SoftServe is a digital authority that advises and provides at the cutting-edge of technology. We reveal, transform, accelerate, and optimize the way enterprises and software companies do business. With expertise across healthcare, retail, energy, financial services, and more, we implement end-to-end solutions to deliver the innovation, quality, and speed that our clients' users expect.

SoftServe delivers open innovation, from generating compelling new ideas, to developing and implementing transformational products and services.

Our work and client experience is built on a foundation of empathetic, human-focused experience design that ensures continuity from concept to release.

We empower enterprises and software companies to (re)identify differentiation, accelerate solution development, and vigorously compete in today's digital economy. No matter where you are in your journey.

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