1. Case Study: AIIMS Jammu (Indoor Navigation)

The deployment at AIIMS Jammu, one of India's largest and most advanced hospitals, serves as a benchmark for smart hospital navigation.

The Problem Faced

AIIMS Jammu has a vast, multi-wing layout encompassing OPDs, labs, wards, and pharmacies, which resulted in a **major wayfinding challenge**. Traditional signage and maps were insufficient for navigation.

- **Consequences:** The navigational confusion led to missed or delayed appointments, increased anxiety for patients and visitors, and staff being constantly interrupted to give directions. The hospital recognized the problem was navigational, not medical.

The Deployment and Solution

IwayPlus, a system integrator, partnered with Rapidise, an ODM specializing in BLE beacons, to create an Indoor Navigation System—referred to as a "GPS for indoors".

- **Scale: 1000+ Rapidise BLE beacons** were deployed across the campus.
- **Location:** Beacons were installed in corridors, waiting areas, and wards.
- **Functionality:** The system was powered by the AIIMS Jammu Navigation Application (IwayPlus's software), which automatically detects nearby beacons, calculates the user's location, and provides real-time, accurate directions.

Results Achieved

The hardware collaboration between IwayPlus and Rapidise redefined patient navigation.

Before Deployment	After Deployment
Lost visitors and delayed appointments	**Seamless indoor navigation** through the mobile app
Staff distraction due to repeated assistance	**Increased staff efficiency** and improved patient flow
High operational friction	**On-time arrivals** and a **calmer patient experience**

The Rapidise hardware contributed to the success by offering specific benefits crucial for a hospital setting:

1. **Accuracy:** Achieved **sub-2m indoor positioning accuracy** due to optimized signal stability and calibrated RSSI design.
2. **Reliability:** Use of industrial-grade components and long-life batteries ensured **24/7 uptime** and minimal maintenance.
3. **Features:** Enabled key features such as Real-Time Positioning Accuracy and **Accessibility-Optimized Routing** (which includes paths using ramps and elevators).

2. General Measurable Value of BLE Beacon Deployments

The sources quantify the measurable value created by BLE beacons across five primary use cases, highlighting the **Return on Investment (ROI)** and efficiency gains.

Use Case	Measurable Result Achieved	Context/Source Problem
Indoor Navigation	**$200K saved** in lost time (per year), and **15% happier patients**.	The cost of poor wayfinding in hospitals can reach $200K per year.
Retail Marketing	**175% ROI**, and **73% buyer engagement**.	Engagement can be 65% lower without beacons.
Asset Tracking	**68% more accurate inventory**.	Inventory inaccuracy without tracking is generally 68%.
Access Control	**300% ROI**, and **20% faster operations**.	Beacons can facilitate a 30% theft risk reduction.
Environmental Monitoring	**$15K saved/year**, and **25% ROI**.	This addresses high costs like the $35 billion per year lost to pharma spoilage in the cold chain.

Overall, a simple beacon network is cited as delivering real-time visibility, ROI, and control. For indoor visibility, efficiency, and scale, **BLE is described as the most balanced choice** compared to alternatives like GPS, Wi-Fi, UWB, LoRa, and RFID.