



IOT IN HEALTHCARE
RTLS SOLUTION FOR CLINICAL
SPECIMEN TRACKING

PROJECT OVERVIEW

Clinical specimen such as blood, urine, fluids, and biopsy tissue, used to diagnose health conditions, are crucial in determining the course of treatment. The accuracy and speed at which clinical tests are carried out demonstrate the competence of clinical laboratories. Transit delays can adversely impact the quality of specimens and the credibility of clinical laboratories. Therefore, it has become increasingly important for hospitals and clinical laboratories to improve visibility into transportation and management of clinical specimens.

Our client, a premier hospital in South India, wanted to gain greater visibility into this process by using a Real-Time Location System (RTLS) for clinical specimen tracking.

BUSINESS CHALLENGE

- Lack of transparency into location of clinical specimens.
- The problem of misplaced specimens due to human error needed to be addressed as it was a common occurrence in spite of closely-monitored tracking and record-keeping processes.
- Absence of a system to monitor and record delays in pick up of specimens from collection points.

BUSINESS REQUIREMENT

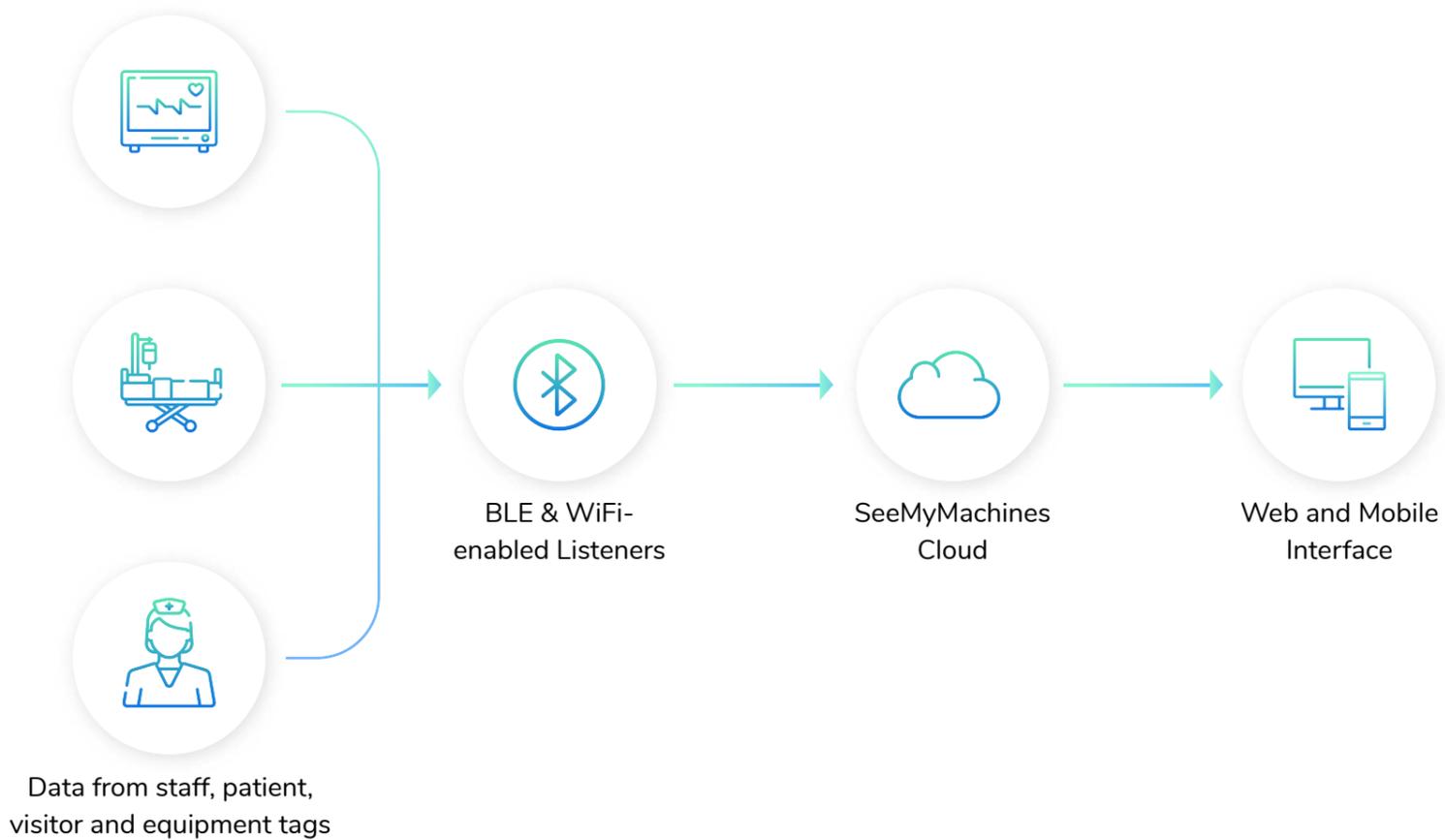
The Laboratory Medicine and Phlebotomy departments at the hospital required a digital solution that was capable of providing deeper insights into the specimen collection and transportation process.

The ideal solution would address problems associated with manual check-ins and pick-ups at collection points and analyze the turnaround time at each location where the specimen was transported.

An IoT solution that tracks specimen movement between transit points was proposed to ensure transparency and accountability.

QBURST SOLUTION

We deployed SeeMyMachines™, a customizable IoT platform that uses advanced location-aware technology for real-time asset tracking. The cloud platform leverages BLE technology to track clinical specimens. BLE Listeners placed at designated areas capture signals from BLE tags assigned to bags and carriers to display location in real time. The solution was integrated with hospital systems to improve operational efficiency and quality of care.



PROCESS TRANSFORMATION

Clinical samples collected at OPD collection points are registered to the system using barcode scanners



Trips are created with tagged bags and carriers to the end points

Movement of bags are traced to identify potential delays

Listeners installed at specific areas capture movement and latest location of the sample

At the destination, samples are received and acknowledged to complete the process

Areas Covered

- OPD Collection Points
- Laboratories

SOLUTION FEATURES

- Dashboard displays data on received/dispatched specimens and delivery performance
- Role-based notifications on status and delays
- Search feature for a quick view into location data
- MIS reports for transport segments and carriers
- Trip tracking and route optimization
- Admin interface to add assets, users, and departments
- Mobile application enables users to add carrier, scan barcode, and track trips

BENEFITS

- Transparency in specimen movement significantly reduced time for report publishing
- The ability to remotely locate specimens reduced workflow distractions
- Analysis of reports helped to balance workload between carriers resulting in improved turnaround time and efficiency
- Insights into specimen movement led to efficient resource and task allocation boosting productivity
- Early detection of anomalies and delays enabled timely corrective action



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