INSPYR SOLUTIONS

Enhancing Public Transportation Efficiency with AI-Powered Scheduling

Challenge

A major U.S. metropolitan public transportation authority faced the challenge of optimizing its bus schedules to balance passenger demand, occupancy, and operational efficiency.

Accurately tracking passenger activity throughout the day is critical to maintaining an optimal occupancy rate of around 85%. Traditional scheduling methods often resulted in overcrowded buses at peak times or underutilized routes during off-peak hours, leading to passenger dissatisfaction and wasted resources.

Beyond scheduling inefficiencies, the public transportation authority also needed to better monitor driver health and ensure timely vehicle maintenance to maintain service quality and reliability.

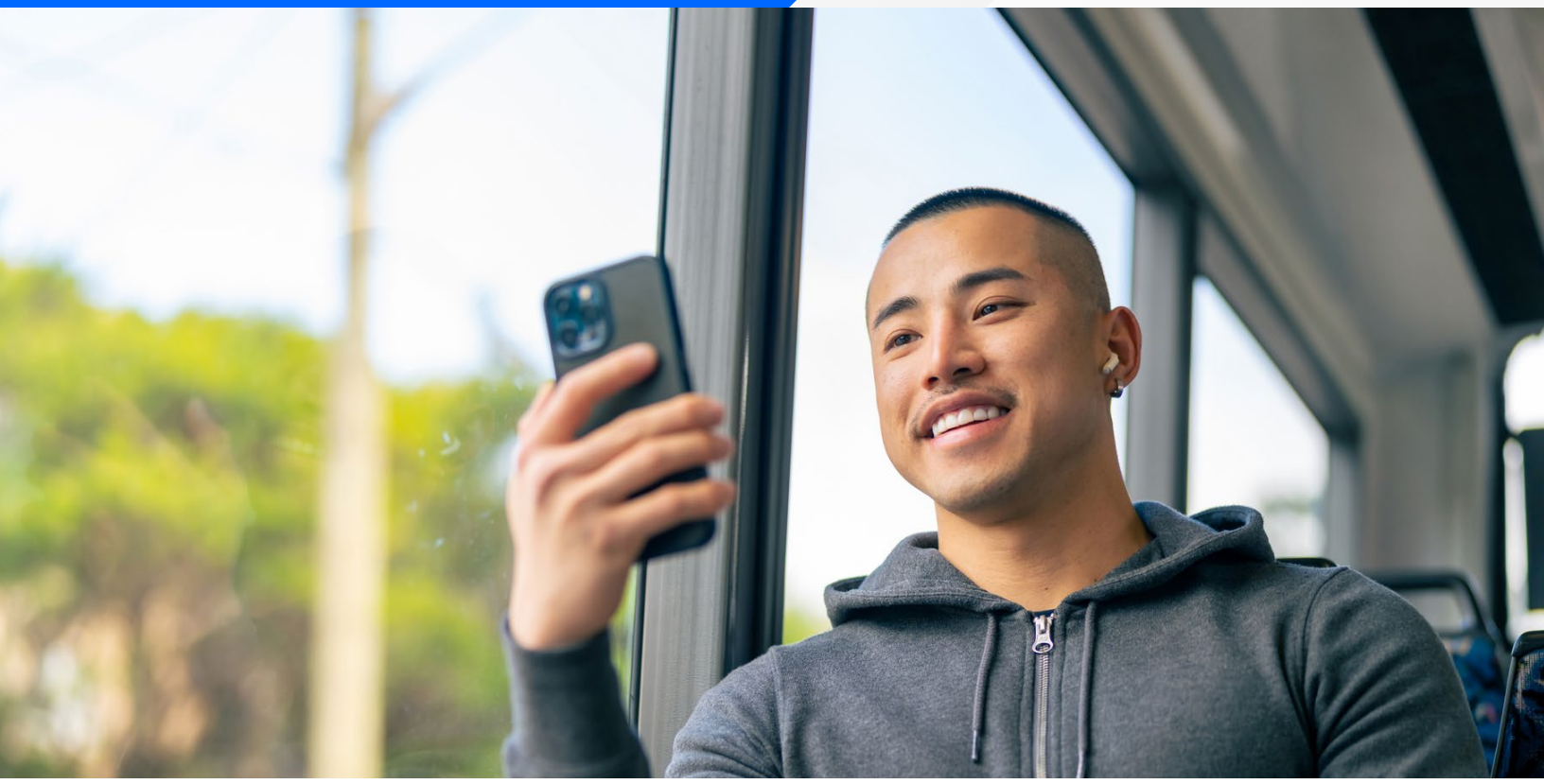
Solution

INSPYR Solutions was chosen to design and implement a new AI-driven solution tailored to improve public transportation scheduling and service reliability. The project combined IoT, real-time analytics, and predictive AI models to address the authority's key challenges.

Key components of the solution included:

- **Passenger Count Monitoring:** INSPYR Solutions deployed an advanced IoT-based sensor and data collection system at bus stops. By monitoring passengers boarding and alighting in real time, the system dynamically adjusted schedules to achieve optimal occupancy levels.
- **Route Optimization and Health Monitoring:** Leveraging AI

Enhanced monitoring supported better driver health management and timely vehicle maintenance.



frameworks such as TensorFlow and scikit-learn, INSPYR Solutions implemented a predictive model to forecast passenger demand and optimize both routes and schedules. The model also integrated driver health data and vehicle maintenance logs to promote safe and efficient service.

Outcome

The AI-powered system delivered significant operational and service improvements:

- **Efficiency Gains:** Dynamic scheduling significantly improved the transportation authority's overall service efficiency.
- **Passenger Satisfaction:** Real-time adjustments led to an improved travel experience for riders.
- **Safety & Reliability:** Enhanced monitoring supported better driver health management and timely vehicle maintenance, resulting in safer and more reliable public transportation.

Client Profile

The client is a metropolitan public transportation authority serving a major U.S. city. With over 200 employees, the organization manages bus networks that connect thousands of daily passengers across the city.

Technologies Supported

Artificial intelligence, IoT devices & real-time analytics, machine learning, Python frameworks (TensorFlow, scikit-learn)

About INSPYR Solutions

Technology is our focus and quality is our commitment. As a leading expert in delivering flexible technology and talent solutions, we strategically align industry and technical expertise with our clients' business objectives and cultural needs. Our tailored offerings include a wide variety of professional services, project solutions, managed services, and talent resources, all bolstered by our strategic partnerships with cutting-edge technology services. By always striving for excellence and focusing on the human aspect of our business, we work seamlessly with our talent and clients to match the right solutions to the right opportunities. Learn more about us at www.inspyrsolutions.com.