



Industry
Transportation

Location
Senegal

Solution
Time &
Attendance

Time & Attendance Solution For the Dakar BRT of Senegal

Client Overview

The Dakar BRT (Bus Rapid Transit) project in Senegal is a significant urban transportation initiative aimed at improving public transit efficiency and reducing traffic congestion in the capital city. Launched as part of the country's broader urban development strategy, the BRT system spans approximately 18.3 kilometers and features 23 dedicated bus stations. It is designed to operate with electric buses, promoting environmental sustainability while providing a reliable and faster commuting option for residents. The project is expected to enhance connectivity between the suburbs and the city center, create job opportunities, and contribute to the overall economic growth of the region.

The Dakar BRT project began construction in November 2019 and was officially launched on December 27, 2023. This project marks a significant advancement in urban transportation for Dakar, being the first all-electric BRT network in sub-Saharan Africa, improving public transit efficiency and reducing travel times in the city. The Dakar BRT is expected to serve around 300,000 passengers with a total of 144 buses that can contain 150 passengers each for 23 stations across the city. ZKTeco is honoured to have provided them a time & attendance management solution.

Requirement

More Efficient Attendance Management

BRT Company aims to effectively manage bus operations to maximize efficiency, with attendance management being a key focus. However, conventional attendance methods typically use paper cards or RFID cards for clocking in or out, both of which fail to genuinely verify whether the holder of the credential is the actual owner, creating a loophole for proxy clocking. Considering that conventional attendance systems may not suit their actual needs and could lead to various inconveniences, BRT Company expected a biometric system that can effectively identify staffs.

ZKTeco

Challenges

Environmental Limitations at Bus Stations

Bus drivers usually clock in or out directly at the bus stations, therefore the attendance system needs to be installed at each bus station. However, not every BRT bus station has fully enclosed facilities, meaning some equipment must be installed in semi-outdoor environments. These semi-outdoor settings can experience great ranges in humidity and dust levels compared to standard indoor environments. If the performance of the devices cannot withstand these environmental changes, it may require frequent maintenance, and even basic identity authentication functions may fail.

Nature of Work Limitations

Fingerprint authentication is commonly used for attendance management or access control. However, for certain job roles, fingerprint authentication may pose inconveniences. Among the primary users of the BRT time & attendance system, bus drivers make up a significant proportion. Due to the nature of work, they may be more likely to have rough fingers, making it difficult for some less capable fingerprint authentication devices to identify accurately. Additionally, some bus drivers are accustomed to wearing gloves while working. If fingerprint authentication is required for attendance, they would need to remove their gloves, causing further inconvenience.

Concerns Regarding Biometric Data

Biometric features are unique physical characteristics that can be used for accurate identification of individuals. However, because these features are highly distinctive and cannot be easily changed like cards, keys, or passwords, if obtained for illegal purposes, biometric data can pose serious threats to personal property, safety, and even public security. BRT expects a system capable of effectively safeguarding personal privacy and preventing data breaches while maintaining efficient operations when using biometric authentication.

Coverage of the Attendance System

The time & attendance system required by BRT needs to cover the headquarters office and over 200 employees across 23 bus stations. If the attendance system does not effectively integrate data for management purposes, the staff responsible for attendance management will have to collect attendance data from each station individually and then consolidate it for management. This process not only increases the workload for human resources management but also complicates attendance management, raising the chances of errors and reducing overall efficiency.

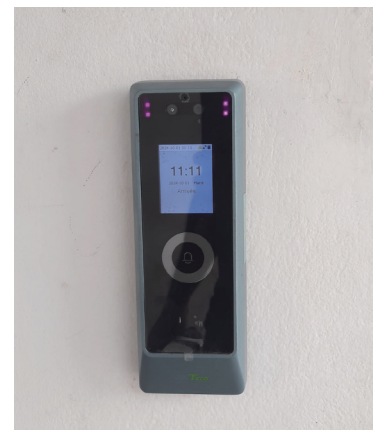
Existing Payroll System

BRT already has a well-functioning payroll system in place. The company is concerned that implementing a new time & attendance system could complicate data integration and management with their existing payroll system. This could lead to additional costs and require employees to adapt to a new system, which may disrupt current operations and efficiency.

Solution Details

ZKTeco has installed the ProMA hybrid-biometric attendance management terminal at BRT's headquarters and 23 bus stations, along with the ZK8500R fingerprint registration and card issuance machine for fingerprint enrolment. All devices are connected to the ZKBioTime attendance management software platform for centralized attendance management.

All the staffs only need to register their personal information, fingerprints, palm prints, and facial data. Once registered, each time a staff clocks in or out, they can choose any biometric method on the ProMA terminal to complete identity authentication successfully. All attendance data is transmitted to the ZKBioTime, allowing management personnel to manage attendance efficiently.



Advantages

Convenient, Fast, and Accurate Biometric Authentication

The ProMA attendance management terminal developed by ZKTeco offers various biometric identification methods, including facial authentication, fingerprint authentication, and palm authentication. Employees can choose any method that suits their needs, eliminating the need to carry physical credentials like cards, making attendance tracking more convenient. The ProMA terminal utilizes advanced biometric algorithms, completing fingerprint or facial recognition in under 0.3 seconds and palm recognition in 0.35 seconds, ensuring high-speed authentication without sacrificing accuracy, which is ideal for high-traffic attendance applications.

Strong Environmental Adaptability

The ZKTeco ProMA terminal is specifically designed to withstand outdoor environmental changes, featuring a robust aluminium alloy casing that effectively prevents impact and corrosion. It has an IP66 rating for water and dust resistance and an IK07 rating for impact resistance, ensuring high standards in these areas. The terminal operates effectively in temperatures ranging from -20°C to 55°C and relative humidity levels up to 93%, making it suitable for harsh environments such as construction sites, outdoor monitoring, and public areas, thus extending the equipment's lifespan and enhancing cost-effectiveness.

Reliable Privacy Protection – GDPR Compliance

ZKTeco recognizes the importance of protecting biometric data as a significant aspect of personal privacy. The ProMA terminals are designed with data protection features to ensure compliance with GDPR regulations. They include secure storage with encryption methods to protect personal data, local data processing to minimize data transmission risks, and GDPR-compliant authentication methods that only collect necessary personal data. This approach aligns with GDPR's data minimization principle, ensuring that biometric templates cannot be reverse-engineered to reconstruct original biometric images. Additionally, the terminals facilitate secure disposal of personal data, complying with GDPR Article 17.

Manage Attendance Anytime and Anywhere

All attendance devices are connected to the ZKBioTime platform for centralized management. ZKBioTime is a web-based attendance management software that allows human resources management managers to access real-time data from any computer, ensuring the immediacy and accuracy of attendance data. The platform also offers powerful automated scheduling features, enabling users to customize scheduling rules according to business needs, which reduces manual operations and errors, enhancing scheduling accuracy. Various attendance report generation options are available, allowing managers to quickly produce reports for analysis and decision-making, significantly easing the workload for human resources management personnel.

Seamless Integration with Existing Systems

One major advantage of ZKTeco products is their strong capability for third-party integration. The attendance management system under ZKBioTime can be integrated with BRT's existing payroll system, allowing data to be pulled from the attendance system and displayed on the platform. This promotes collaboration and data sharing across different departments, thereby improving overall management efficiency.

Ultimate Scalability of the System

ZKTeco products are designed with scalability in mind, accommodating future user needs. If additional attendance points are required, the existing solution can be expanded without the need for a complete redesign or installation. New ProMA terminals or other attendance or security devices can be added and connected to the ZKBioTime platform, maximizing cost-effectiveness.

