Building sustainable future

Passenger Counting System
(AJV-SOF-PCS-001)

Introduction

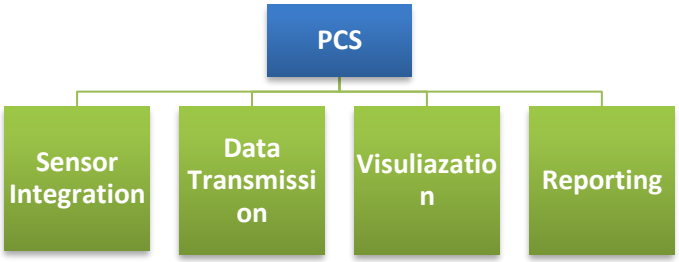
The Automatic Passenger Counting (APC) System presents an intelligent and technologically advanced solution for accurate passenger tracking in public transportation. Employing sophisticated sensor technology strategically placed at the entry and exit doors of buses, this system ensures precise in and out passenger counts, along with real-time bus occupancy data.
Through Data Transmission Units (DTU), the sensors seamlessly relay passenger details to a cloud-based software. Integrating with the real-time location of buses allows for dynamic mapping of passenger counts across different locations at any given time. This system serves as an efficient tool for regulating passenger flow, offering real-time tracking of boarded and alighted passengers. Providing live occupancy numbers in public transport vehicles, it distinguishes between entries and exits, contributing to effective management of mass transportation. Additionally, the system boasts data storage capabilities for at least seven days and automatic synchronization with a central data center, ensuring comprehensive and up-to-date passenger statistics.

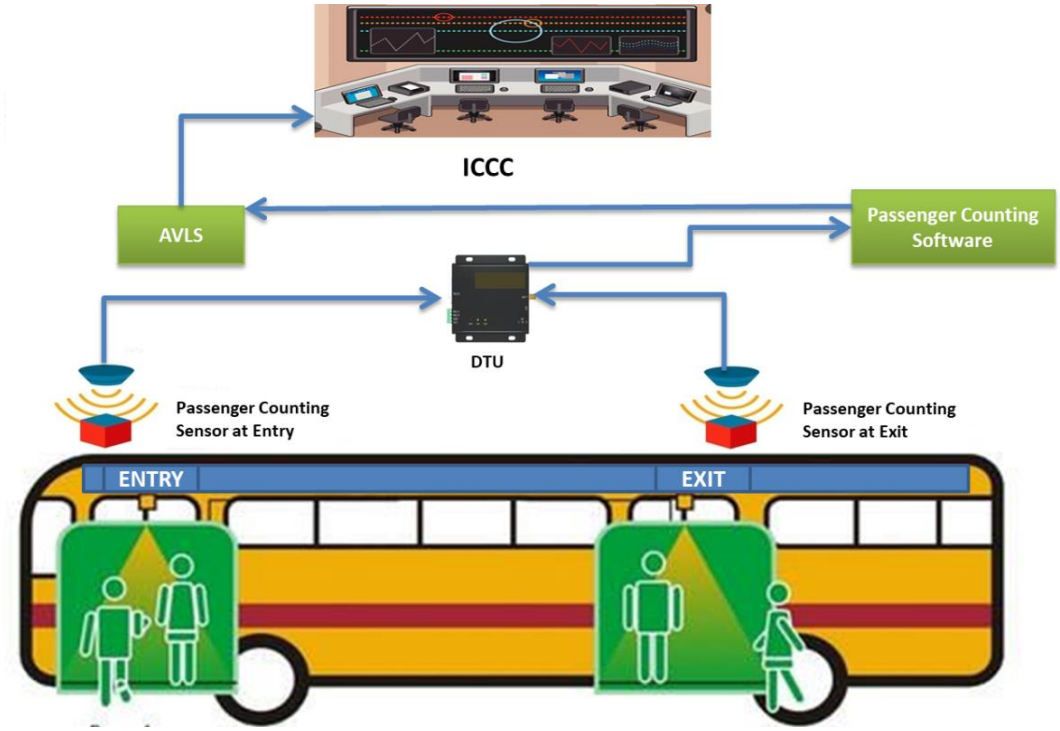
Uses

- Facilitates precise tracking of passenger entries and exits in public transportation.
- Offers real-time bus occupancy data for effective passenger flow management.
- Enables regulation of passenger numbers for improved service efficiency.
- Provides live occupancy numbers in mass transportation vehicles.
- Enhances tracking of passengers boarded and alighted at different locations.
- Contributes to intelligent and dynamic mapping of passenger counts.
- Supports automated syncing with a central data center for up-to-date statistics.
- Assists in monitoring and regulating passenger flow for optimal public transport operations.
- Improves resource allocation and service planning based on accurate passenger data.

Features

- Utilizes sophisticated sensor technology for accurate in and out passenger counting.
- Deploys sensors at entry and exit doors of buses to ensure comprehensive tracking.
- Relays passenger details to a cloud-based software through Data Transmission Units (DTU).
- Integrates with real-time bus location to map passenger counts dynamically.
- Facilitates efficient regulation of the number of passengers traveling on buses.
- Displays live occupancy numbers in public transport vehicles, distinguishing entries and exits.
- Stores at least seven days of data for comprehensive historical analysis.
- Capable of automatic syncing with a central data center for seamless data updates.
- Contributes to effective tracking of passenger movement at different locations and times.
- Enhances public transportation management through accurate and dynamic passenger counting capabilities.





Technical Specifications:

S. no.	Parameter	Remarks
A	**GENERAL**	
1	Centralized and Integrated Solution	Ajeevi Passenger Counting System
2	Technology Used	COTS (Commercial Off the Shelf)Technology
3	Access Features	RBAC Model (Role-based access and control)
4	Architecture	N-tier scalable architecture ,modular design ,robust software
5	Framework	.NET Core Framework ,ASP.Net MVC
6	Database	SQL Server 2016 and above, Mongo DB, Posgre SQL, Unified database for all SWM data

7	Operating System	Windows/Open Source Linux
8	Frontend	JavaScript, Jquery, React JS, Angular, HTML, Bootstrap, Razor Pages
9	IOT Hub Integration	Kafka, Rabbit MQ, Socket Programming, Web APIs
10	Application Availability	High availability and DR replicability
11	Single-Sign On facility	Available
12	Audit Trail	Ability for logging, audit, and tracking of any changes carried out on the database
13	Interoperability Standards	Can be integrated with any other application through web APIs(Push or Pull)
14	Security Features	1. Security design with well-designed identity management system, security of physical and digital assets, data and network security, backup and recovery and disaster recovery system.
		2. Support for security features such as W3Cspecifications, Information access/transfer protocols SOAP,HTTP/HTTPS, etc 3. API Integration allowed post authentication
15	External Communication	Through SMS Gateway and SMTP Integration
16	Web Enabled Solution	Yes
17	Services for GIS Integration	Google Maps, ESRI Map, Any other available open map
18	GIS Features	Geomapping, Geotagging, POI, Geofencing through Geo JS ON and drawing tool
19	Deployment Features	SaaS Model, On-Premise Model, BOOT Model
20	Cloud Deployment	Amazon AWS, Microsoft Azure
21	Information Security	ISO 27001 certified System
22	Operations	ISO 9001 Certified
General Features		The dashboard will showcase real-time bus occupancy, differentiating between passenger entries and exits.
		Visual elements like charts, maps, calendars, gauges, and alerts will offer an interactive and intuitive interface.
		View-management tools will enable easy manipulation of visual elements for seamless user interaction.
		Efficient filtering and sorting options will enhance data analysis based on various attributes.

	Drill-down functionality will allow users to navigate through extensive datasets swiftly and based on specific criteria.
	Reports will be presented in a user-friendly format, capturing the current display in MS-Excel, PDF, and web formats.
	Comprehensive historical analysis is facilitated by storing at least seven days of data.
	Automatic syncing with a central data center ensures up-to-date and seamless data updates for informed decision-making.
	Passenger movement can be tracked at different locations and times, enhancing overall analysis.
	The system's dynamic mapping of passenger counts contributes to intelligent public transportation management.