

# **Title**

## **Automated transport management system (for educational institutes)**

Name: Maryam Khan SRN: PES2UG21CS283 Name: Mudundi Manasvi  
Varma SRN: PES2UG21CS305 Name: Pooja Satheesh SRN:  
PES2UG21CS374 Name: Preethi M SRN: PES2UG21CS396

### **Synopsis**

The Automated Transport Management System is an advanced solution designed for educational institutes to efficiently manage their transportation services. This comprehensive system incorporates a wide range of features, utilizing various functionalities and features of the C++ programming language.

The system incorporates login verification, pick-up point/destination selection, seat availability check, fee calculation based on distance and estimated arrival time. The system employs CSV file storage to save user login details, destination information, and other relevant data. By leveraging the capabilities of the C++ programming language, the system provides efficient data persistence and easy retrieval of information.

Route planning is optimized using the bidirectional Dijkstra algorithm, a well-known graph traversal algorithm. This algorithm reduces the number of nodes that need to be updated as opposed to traditional dijkstra, resulting in faster route calculations.

The system uses C++'s classes, operator overloading, insertion and extraction operators, polymorphism, structures, vectors, maps, lists, heaps, arrays, constructors dynamic constructor, parametrized constructor, DMA, pointers, reference variables, class scope operator, iterator, access specifiers, virtual destructor and file manipulation. It employs concepts such as polymorphism and inheritance to support multiple user roles and permissions during the login process, seat availability check and fee calculation.

Overall, the Automated Transport Management System demonstrates the effective utilization of C++ programming language features to provide educational institutions with a robust, efficient, and user-friendly transportation management solution. By incorporating these advanced features, the system streamlines processes, enhances security, and offers a seamless

experience for both administrators and users.