

## BUS TRACKING SYSTEM WITH LIVE TRACKING AND AI-POWERED SEAT AVAILABILITY

## MINOR PROJECT REPORT

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**BONAFIDE CERTIFICATE**

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## ABSTRACT

The Advanced Bus Tracking System with Live Tracking and Seat Detection AI represents a cutting-edge solution to enhance the efficiency, safety, and overall experience of public transportation. This system harnesses the power of real-time tracking technology and artificial intelligence to revolutionize the way we interact with and manage bus services. The core feature of this system is its live tracking capability, which allows passengers to monitor the precise location of buses in real- time through a user-friendly mobile application. This not only eliminates uncertainties associated with bus arrival times but also aids in route planning, reducing waiting times and ensuring a seamless travel experience. Additionally, the system incorporates an innovative Seat Detection AI, which employs computer vision and machine learning algorithms to automatically detect and report the occupancy of each seat on the bus. Passengers can use the app to view seat availability and select available seats if they want to be socially distant or prefer roomier seats. In addition, the system can help drivers and transit authorities monitor overcrowding to ensure safer travel conditions. Administrators and transit agencies benefit from the system's comprehensive dashboard, which provides real-time data on bus locations, ridership and route efficiency. This data-driven approach enables proactive decision making and optimizes fleet management and service quality.

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**LIST OF ABBREVIATIONS**

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| **ABBREVIATION** | **EXPANSIONS** |
| GPS | Global Positioning System |
| BaaS | Backend-as-a-Service |
| APIs | Application Programming Interface |
| IVR | Interactive Voice Response |
| HTTPS | Hypertext Transfer Protocol Secure |
| HTML | The HyperText Markup Language |
| CSS | Cascading Style Sheets |
| IoT | Internet of Things |
| GUI | Graphical User Interface |

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