Creating a safer school-commute using tracking technology
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Executive summary

Across India, there is increasing pressure from parents, schools and regulators to deliver higher standards of safety in the school bus journey. This means that transparency, reliability and safety are top priorities for schools when selecting a school bus operator. Fleet management companies therefore must focus on models that promote a consistently secure on-road experience, and enable real time action and information sharing with schools and parents. By adopting school bus tracking technologies, bus operators can increase visibility of their own fleet cost-effectively and with minimum hassle, achieving better fleet control and maintaining the trust of their customers.

Introduction: The expectations of a school bus service

In most homes across the country a school bus represents all the stability of a smooth routine. Parents and schools depend on school buses to deliver children safely to and from school every day. However, given the road and traffic conditions prevailing in almost every major Indian city, bus arrival times are unpredictable, resulting in parental anxiety, frustration, complaints and reputation loss for the school.

While many of these factors are beyond the control of individual fleet owners, there has to be a single-minded focus on managing the commute to the satisfaction of schools and parents.

For parents to feel confident that their children are in safe hands, the school bus service has to score repeatedly on reliability, predictability, safety and ability to tackle unexpected situations. The keys to creating this relationship are transparency and communication. The development of real-time alerts has transformed numerous industries, boosting customer satisfaction in sectors from banking to logistics, and this facility is especially apt for school bus monitoring.

In the ‘on-demand era’, customers take live communication for granted. The development of real-time alerting has transformed numerous industries, boosting customer satisfaction in sectors from banking to logistics. The same tools will find more favour in the education sector, where parents want real-time assurances of their child’s safety in the face of an unpredictable commute.

The barriers in India: unpredictable traffic and road conditions, unexpected delays

In India, unpredictable traffic and road conditions mean that school commutes are often disrupted. Last year, the government released statistics showing that 146,133 people were killed in road accidents in 2015, with experts pointing to poorly designed roads as the source of the problem.

Statistics show that school buses in particular are affected by the unsafe road conditions across the
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country, with 1,353 children injured in accidents involving school transport in 2015. Although steps are being taken to increase regulation on school buses in India, with the Supreme Court introducing various measures over the past five years, there is an opportunity for fleet operators to bridge the gap between parental expectations and the on-ground reality of school bus services.

The solution: transparency and communications

Parents are justifiably anxious and want concrete assurances that their children are safely en route to and from school, even if buses are delayed due to unavoidable circumstances. They, along with the schools themselves, are keen to work with fleet operators that can offer increased visibility of their children’s school journeys.

Traditional communications methods such as voice calls are not suitable in this situation, especially when a large number of people require real-time information. No parent wants to experience the nerve-racking wait for the late school bus, calling the school or other parents for updates, who in turn can only offer limited support.

Equally, providing the driver with a mobile phone is not a viable option. Fielding constant phone calls acts as a distraction and increases safety concerns, yet the cost of hiring additional staff on board buses just to communicate with schools and parents is untenably high.

Bus fleet companies must look to new technologies to provide constant communication and visibility of bus journeys without driver involvement, extra manpower or huge additional costs. Only then, can they provide the peace of mind that parents and schools demand. Fleet operators that are able to differentiate themselves from competitors by offering this information will stand out as a trusted brand for school bus services.

What is School Bus Tracking?

Deployed by leading schools across India, school bus tracking relays the location and movement of the school bus and sends updates through an administrative portal on the internet. This information is then transmitted to fleet managers, school and parents. There are dozens of solutions that offer various types of school bus tracking, however when it comes to choosing a solution, a fleet operator must ensure they adopt a reliable and easy-to-use service that keeps customers updated regardless of traffic, location, weather or network conditions.

School bus tracking uses location-based service technology, enabled by machine-to-machine (M2M) communications, also known as the Internet of Things (IoT), to automatically track vehicles. The technology relies on two key items to work properly: the quality of the connection, and the integrity of both the device and the software platform that processes the location data to provide real-time updates.
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The components of a School Bus Tracking service

A comprehensive school bus tracking solution consists of three components that provide the information and transparency that parents demand:

• **In-vehicle tracking unit**
  This is a transmitting device, mounted on or inside the vehicle, which constantly collects and transmits information about its location. It therefore requires a long battery life, and must be both secure and tamperproof to ensure all data transmitted is accurate. Easy to retro-fit onto the school bus, the device runs continuously to relay a constant stream of data on its location, speed and status to the online management and administrative portal.

• **The network**
  The data that is collected by the in-vehicle tracking unit then needs to be transmitted and analysed. Two main types of transmission methods can be used to send location data from the bus: satellite or mobile networks. Satellite technologies are expensive. With reliable 3G networks now available across all major cities, it is a cheaper and more effective way of data transmission from the in-vehicle device to servers for analysis.

• **Management and administrative portal**
  The management and administrative platform is the third component of the solution. It comprises analytics that compares the real-time data from the school bus against pre-agreed routes and times that have been set by the fleet co-ordinator. Sophisticated software is able to process the information at very high speeds to give constant visibility of the buses’ location, speed and progress. Based on the parameters that have been agreed, if there is any deviation from the route, timetable or any unscheduled stops (i.e., ones that are not at pre-designated bus stops), an alert is triggered to enable immediate action.

The front-end of this system is a management and administrative portal which is easily accessible via a web browser.

Ease of use and tiered access: the twin success factors

The usability and feature set of a solution is often the difference between success or failure of the system.

A school bus management solution should offer tiered levels of access to fleet managers, schools and parents.

Fleet operators have full visibility of their entire bus fleet across schools and all routes: they should be able to set operational parameters, provision and manage access cards and decide whether to integrate additional safety services.

Schools should be granted access to see the location and route of all their buses. They should have the tools to configure settings to be shown either on the web portal or sent to predesignated phones as SMS messages.

Parental access could grant information on the bus...
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journey of their own child and allows SMS notifications of delays and arrivals to be enabled for real-time reassurance.

The system should provide the ability to generate summary reports on a daily, weekly or monthly basis to spot trends and plan improvements. Fleet operators should ensure the system is easy to customise to suit their specific needs, and also self-administrative, so that after initial set up, all users, regardless of technical expertise, can use and change their settings through the portal easily without needing training.

Value-added security features

School bus tracking is the foundation of building trust between fleet operators and their customers. Technology can be layered onto the solution to provide additional security features.

For fleet operators a number of features can provide better control and visibility over the fleet. Live route tracking pinpoints the precise location of the school bus in real-time while route replays can be used for a detailed review of a particular journey. Geo-fencing is an advanced option which generates an alert as soon as the bus leaves its pre-identified route, allowing fleet managers to act immediately to determine the cause of the change and contact the driver. Geo-tagging allows bus stops to be marked on a map and the bus’s position shown in relation to them. Alerts can provide updates on school bus speeding; they work alongside the average and real-time speed information on the portal to verify driver safety.

Access cards can provide additional security assurances for parents and schools. CCTV services allow complete video monitoring of all bus services, allaying all doubts about in-vehicle safety.

Merits of a managed vs DIY solution

When implementing school bus tracking, fleet operators must make the decision of whether to opt for a managed service or build a piecemeal solution to suit their needs. Although a DIY option may seem appealing, there are a number of reasons why it is beneficial to opt for a managed service.

• Simplicity
There are multiple components to school bus tracking and a managed solution provides them all; the device, application, connectivity and user portal. As a result they are fast and easy to roll out, requiring no technical expertise to set-up or operate. By using a single service provider, fleet managers can be assured that all elements of the school bus tracking solution are compatible and will work seamlessly.

• Price
The monthly cost of a DIY option might be lower; however companies are faced with the upfront investment in equipment and responsibility for its maintenance. Managed solutions often come with minimal upfront investment and a pay-as-you-go model. This allows for a scalable business model and improved cash flow as there is a lower capital outlay and fixed monthly costs.
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• **Flexibility**
Managed solutions tend to offer a list of additional, optional features that help create a customised service. Fleets are able to rapidly adapt the solution to meet their needs, whereas a DIY solution would require a technical team to build in extra components, a time consuming and labour intensive process.

• **Reliability**
By selecting a reputable and trusted managed solutions provider, fleets are guaranteed reliable performance and better after-sales support. The service will also be backed by rigorous testing and quality control procedures with carrier-grade infrastructure.

• **Parent satisfaction**
Fleet management companies need to build trust with the parents and schools that use their service. A professionally designed solution automatically integrates SMS and web alerts to keep parents informed and helps maintain solid business relationships.

The benefits for fleet operators

In the school bus market, the most important differentiators are reliability and trust. An accessible, easy to use school bus tracking allows a fleet provider to stand out.

By working with an established communications provider, fleet managers will be able to guarantee their customers reliable, real-time information that meets their particular requirements. The end-to-end service offered by Tata Tele Business Services which includes device, application and connectivity, not only delivers the information demanded by customers, but gives an assured service with lower cost of ownership in comparison to a DIY solution. Additionally, the flexibility and scalability of a solution that is quick to deploy, allows a fleet to be expanded rapidly whilst maintaining the same safety measures across all vehicles, without the need for upfront investment. All with the added reassurance of a name that is synonymous with trust and reliability, as well as a strong track record in delivering technology and communications solutions for companies across India.

Conclusion

Safety concerns surrounding school bus commutes will always remain at the forefront of the minds of schools and parents alike. This offers an opportunity for fleet operators and schools to take the initiative and offer improved services with safety and security as a priority. By partnering with a leading solutions provider to offer comprehensive school bus tracking, a fleet operator can improve trust and build a brand image as a provider that is committed to creating a safer, more dependable way of commuting for school children.
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