



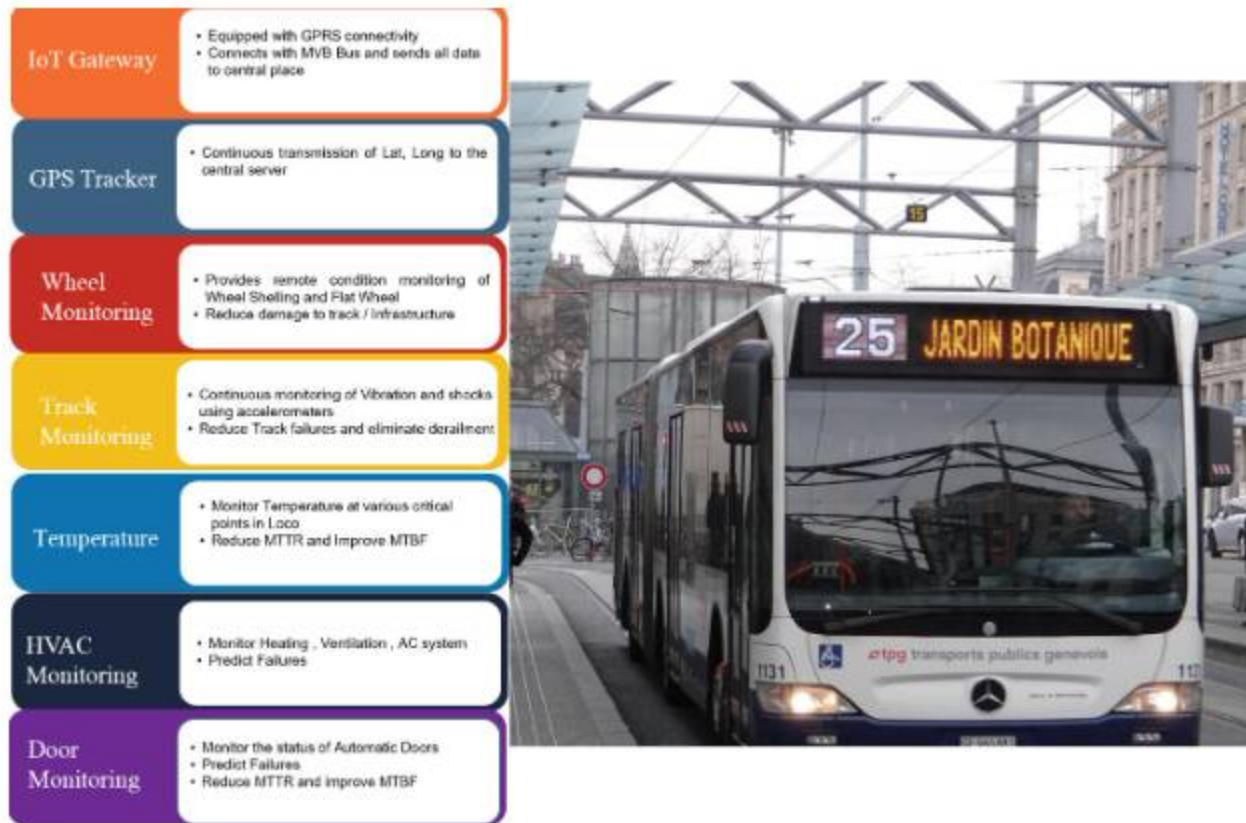
# Smart Fleet Management with IoT



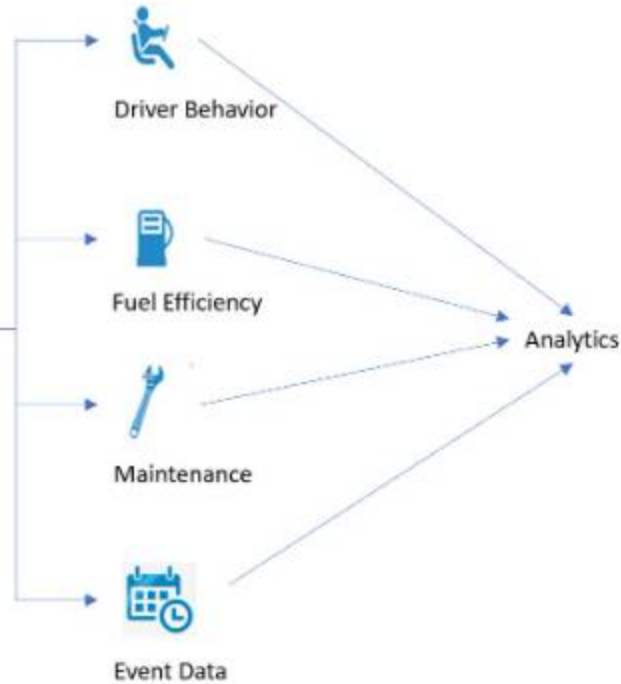
3350 Scott Blvd, Bldg. 34 Santa Clara, CA 95054  
Phone: +1 877-849-5838 [www.acnsol.com](http://www.acnsol.com)

Fleet management systems monitor different kinds of motor vehicles such as cars, vans, trucks, aircraft, ships, and rail cars. Managing a fleet of vehicles is a challenging task. Fleet Management System Or Enterprise Asset management system allows companies to remove or minimize the risks associated with vehicle investment and improve efficiency, productivity, and compliance with government legislation.

Fleet Management Solutions integrated closely with technologies - telematics, cloud, big data, and largely IoT, have proven to be real game-changers for transport businesses. The various sensors are embedded in the vehicles, and the data captured from them has enabled to harness the power of the internet with advanced analytics for predictive Maintenance. The below figure illustrates the different sensors that are being deployed for fleet management.



It is not always about driver behavior and fuel efficiency. Fleet managers are turning to predictive analytics to stay on top of Maintenance with the goal to mitigate part failures before they happen. Predictive Analytics combines rich data from telematics and Maintenance to help forward-thinking fleet managers figure out what is coming next. The figure below illustrates the different types of data that are being analyzed by fleet managers.



The data from the fleet vehicles can be categorized into four types:

- **Driver behavior:** Beyond tracking time and physical location with traditional GPS technology, IoT sensors can monitor driver behavior with things like unnecessary idling, accelerating and decelerating patterns, breaking habits.
- **Fuel efficiency:** IoT sensors can track fuel efficiency. A driver's behavior may be affecting fuel efficiency, or it could be time for Maintenance.
- **Maintenance:** Embedded sensors can send signals when monitored parts are close to failure or need a tune-up. For example, sensors are often used to monitor each tire's pressure level, allowing the driver or fleet manager to address the problem before it becomes a costly blowout.
- **Event-Based:** Capturing both video and vehicle data before, during, and after a collision or other sudden event. This information provides a comprehensive account of data in connection with the driver, vehicle (such as speed, acceleration, braking, steering), outside environment, and roadway, creating a record of events that can aid in further investigation.

All these data types can together be further analyzed for Predictive Maintenance Programs. Predictive Maintenance is the way Maintenance will be done in the future. Predictive Maintenance gives the ability to predict when a part or component will fail and to respond by replacing that part or component prior to failure. Sensor data from Radiator hoses, Fan belts, Batteries, Starters, Alternators, Brakes, Tires, etc. have become input for the Predictive maintenance systems.

Here are a few ways IoT is set to revolutionize fleet management:

### 1. Predictive Maintenance:

Sensors-equipped vehicles send automated signals and early warning alerts when the monitored parts need Maintenance or are close to failure. Alerts such as a low battery, coolant temperature, or engine

maintenance can help in doing preventive Maintenance – all such factors help vehicles run safely for a longer duration resulting in a higher OEE (Overall Equipment Effectiveness).

**2. Fuel Efficiency:**

Fuel efficiency is linked to driver behavior and driving style. Things like unnecessary idling, accelerating, and decelerating patterns, breaking habits, and average speed affects fuel efficiency. Using IoT, fleet managers can track all such data through embedded sensors and plan to train drivers to improve fuel efficiency.

**3. Gain Insights:**

Through various sensors, a large amount of data can be analyzed to gain actionable insights. This information can help companies make real-time decisions quickly for instant improvements.

**4. Improved Safety:**

IoT technologies can be used to mitigate risks and promote safety on the roads in many ways. IoT enables driver training, predictive Maintenance, alerting on changing weather conditions that lead to improved safety on roads.

**5. Automation:**

IoT integrated with Fleet Asset Management System enables automation of various processes and Maintenance. For example, automation of scenarios like broken-down vehicles sends an automatic ticket to get tow service; the driver receives weather warning notifications, automatic rerouting, etc.

**6. Predictive Parts Planning:**

One of the models for Spare parts planning that is being used nowadays is to predict parts that may be needed in the future for vehicle repairs and maintenance, instead of the commonly used consumption-based model. The idea behind it is to use cutting-edge technology like IoT, machine learning, and AI for simultaneously collecting and analyzing data on different types of vehicles that need to be serviced and use that to predict parts that are likely to need repair or replaced.

*Are you looking to deploy new technologies and innovative solutions for Asset Management or Field Service? Contact us for a detailed presentation on IoT, Asset Management, or Field service.*

**USA**  
Head Office  
3350 Scott Blvd, Bldg 34  
Santa Clara, CA 95054

**South Africa**  
609 Lanseria Corporate Estate,  
Falcon Lane, Lanseria,  
Gauteng

**Chile**  
Galvarino Gallardo 1638,  
Providencia,  
Santiago

**India**  
Development Centre  
102A, HARTRON, Electronics City,  
Gurgaon

