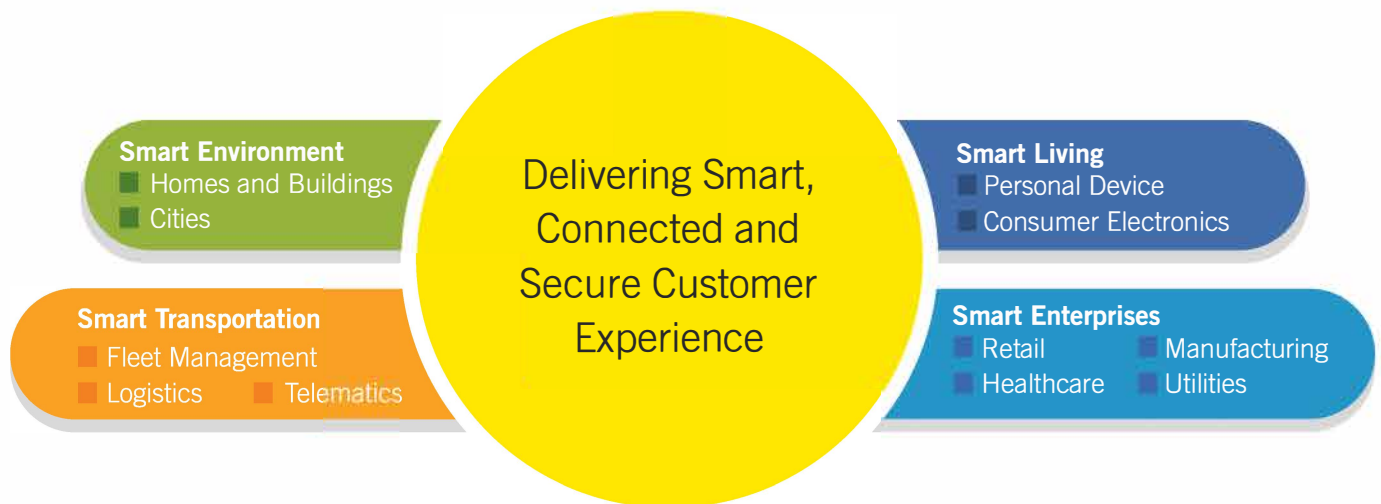# Enabling M2M/IoT with Solutions and Services

M2M industry is an emerging industry where tremendous opportunities are available via M2M platforms, M2M devices and M2M management services. Happiest Minds has the capability to work with product/platform companies to help enhance the products in the M2M ecosystem and has the capability to consult with the enterprises to create the right solution to bring the benefits of M2M to the enterprise.

Our Services range from Designing Hardware devices, cloud enablement, mobility enablement, Engineering and Real Time Analytics and consulting to create end-to-end solutions. Our services also include managed Services via our SOC/NOC to ensure that the M2M infrastructure is up and running for the business.

Happiest Minds brings the ideal blend of technology expertise (to develop/enhance products in M2M chain), domain expertise (for vertical solutions) and consulting expertise (for creating the right solutions with the right partner ecosystem). Our ability to integrate these solutions with business processes makes us the idea partner for creating end to end solutions.

Happiest Minds leverages its thought leadership in the areas of Automotive / Telematics, Smart Homes, Retail, Manufacturing, Insurance, Banking and Consumer Electronics to create the right vertical solutions for the right enterprises.
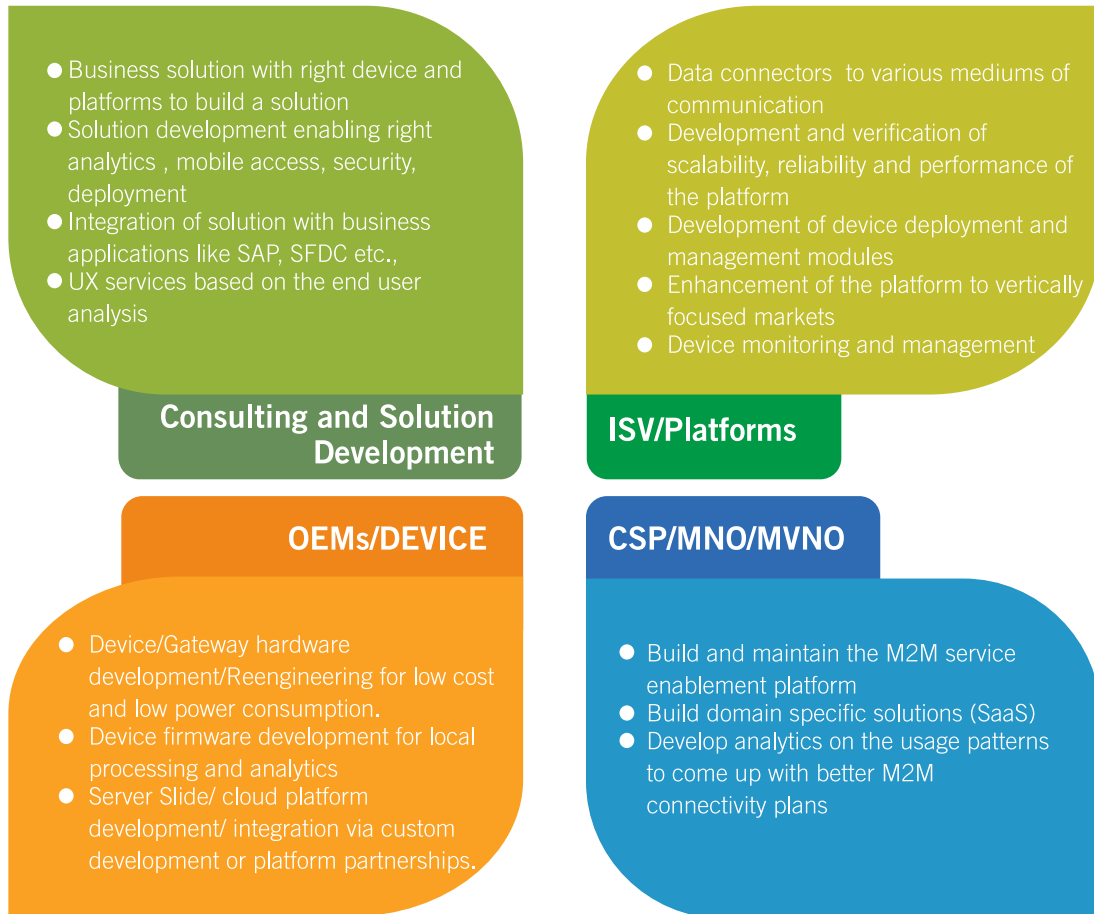
Happiest Minds is committed to delivering a customer experience which is smart, connected and secure. This would allow delivering services for making our environment, living and enterprises smarter than what they are.

Smart Environment
- Homes and Buildings
- Cities

Smart Transportation
- Fleet Management
- Logistics
- Telematics

Delivering Smart, Connected and Secure Customer Experience

Smart Living
- Personal Device
- Consumer Electronics

Smart Enterprises
- Retail
- Manufacturing
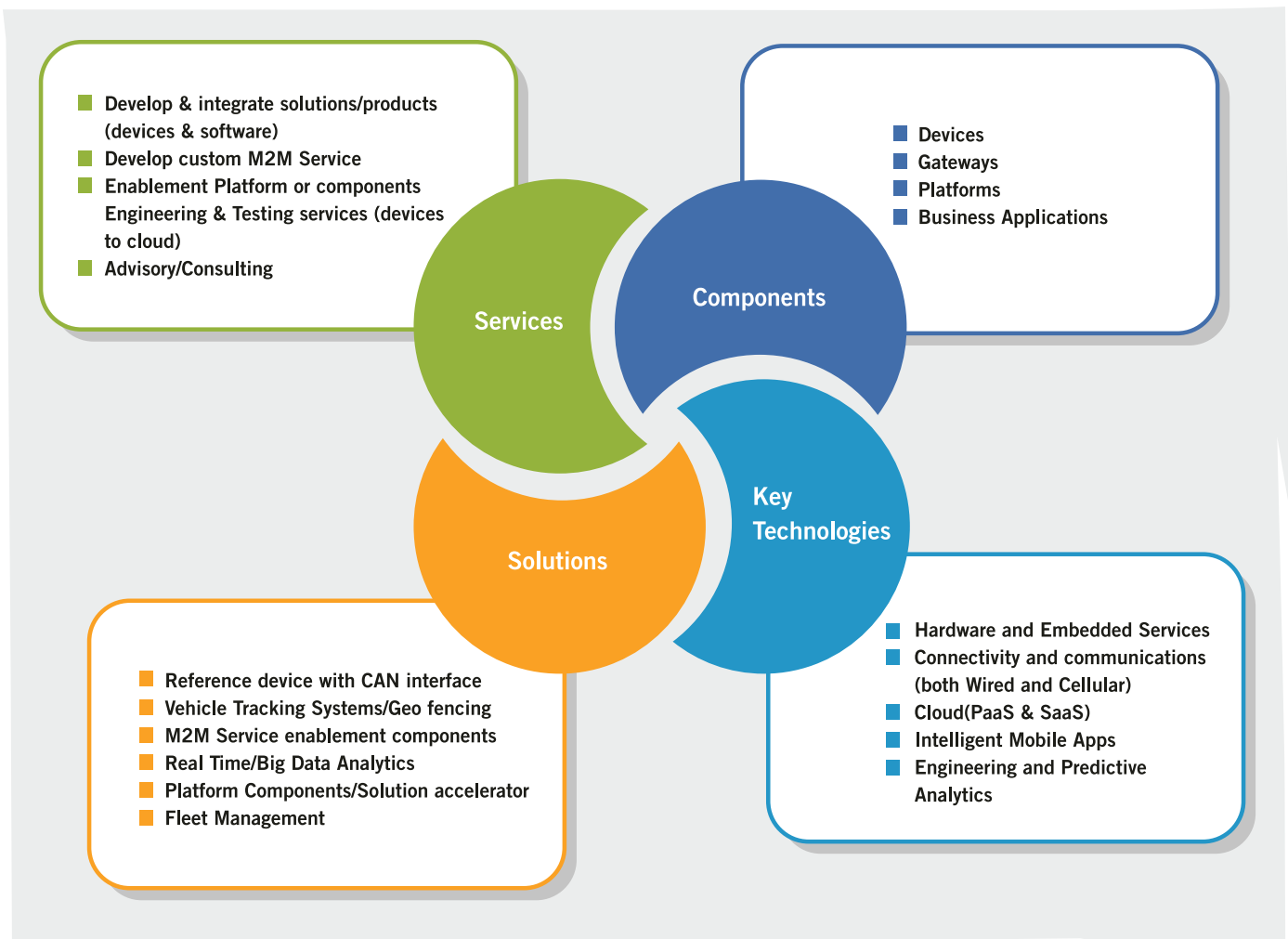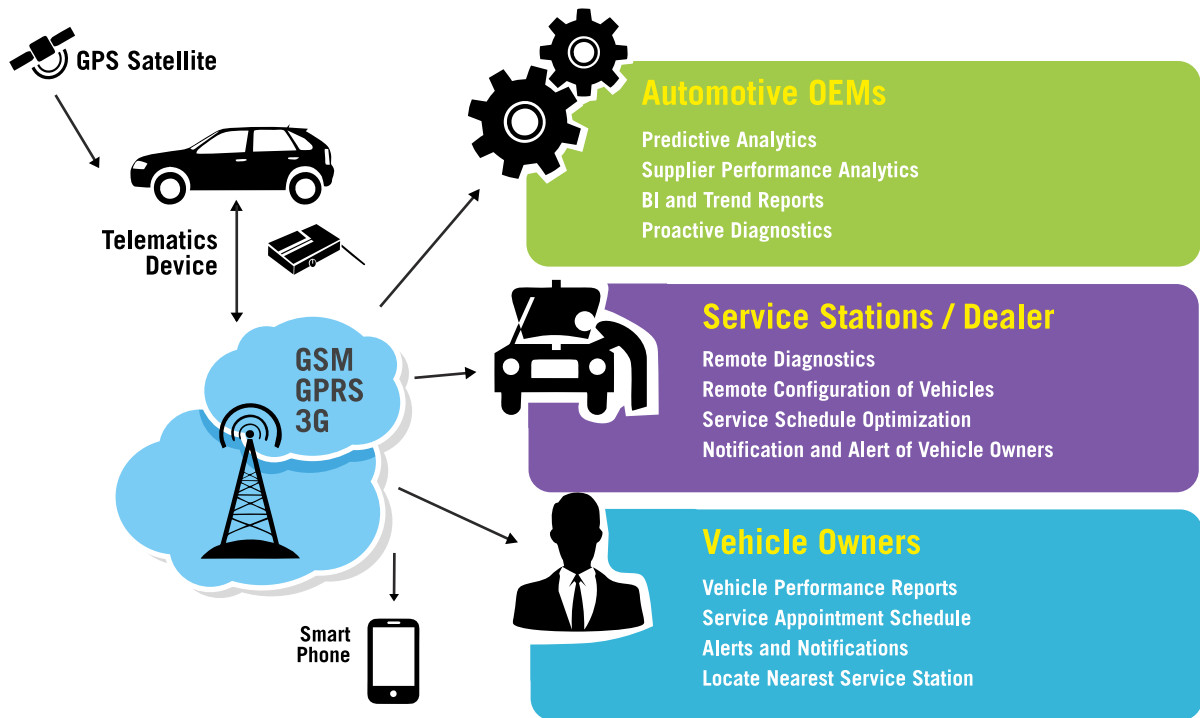- Healthcare
- Utilities

Industry Partnership

Happiest Minds is a General Member of the Intel® Intelligent Systems Alliance: a community of embedded developers and solution providers

Consulting and Solution Development

- Business solution with right device and platforms to build a solution
- Solution development enabling right analytics , mobile access, security, deployment
- Integration of solution with business applications like SAP, SFDC etc.,
- UX services based on the end user analysis

ISV/Platforms

- Data connectors to various mediums of communication
- Development and verification of scalability, reliability and performance of the platform
- Development of device deployment and management modules
- Enhancement of the platform to vertically focused markets
- Device monitoring and management

OEMs/DEVICE

- Device/Gateway hardware development/Reengineering for low cost and low power consumption.
- Device firmware development for local processing and analytics
- Server Slide/ cloud platform development/ integration via custom development or platform partnerships.

CSP/MNO/MVNO

- Build and maintain the M2M service enablement platform
- Build domain specific solutions (SaaS)
- Develop analytics on the usage patterns to come up with better M2M connectivity plans

The Happiest Minds portfolio of M2M solutions and services can be tailored to fit any horizontal or verticals of M2M technologies, be it hardware design, M2M platform, M2M services integration. There are quite a few solution accelerators which have been developed to ensure faster time to market for our customers.

Services
- Develop & integrate solutions/products (devices & software)
- Develop custom M2M Service
- Enablement Platform or components Engineering & Testing services (devices to cloud)
- Advisory/Consulting

Components
- Devices
- Gateways
- Platforms
- Business Applications

Solutions
- Reference device with CAN interface
- Vehicle Tracking Systems/Geo fencing
- M2M Service enablement components
- Real Time/Big Data Analytics
- Platform Components/Solution accelerator
- Fleet Management

Key Technologies
- Hardware and Embedded Services
- Connectivity and communications (both Wired and Cellular)
- Cloud(PaaS & SaaS)
- Intelligent Mobile Apps
- Engineering and Predictive Analytics

Telematics Solution Overview

GPS Satellite

Telematics Device

GSM GPRS 3G

Smart Phone

Automotive OEMs
Predictive Analytics
Supplier Performance Analytics
BI and Trend Reports
Proactive Diagnostics

Service Stations / Dealer
Remote Diagnostics
Remote Configuration of Vehicles
Service Schedule Optimization
Notification and Alert of Vehicle Owners

Vehicle Owners
Vehicle Performance Reports
Service Appointment Schedule
Alerts and Notifications
Locate Nearest Service Station

Happiest Minds' Assests:

- Oxyscope 1000: Telematics device
- Simulators for CAN Bus and Vehicle movement
- Cloud Advisory and Assessment Platform
- Solution to validate mobile applications for geo-fencing scenarios.
- Real Time Analytics, Integrating Real time analytics with batch processing, Log Analytics

Telematics solution developed by Happiest Minds is a reference solution which has all the pieces to create a full product out of it. Solution involves the following components:

- **Reference Telematics device:** Device has CAN and UART interface to collect data from the vehicle. It also has the capabilities of GPS and eCall. The storage on board is useful to store the information intermittently in case of connectivity loss.
- **Cloud based platform:** This platform can be custom created for various businesses:
- **Small Business:** The cloud platform gives the functionality of connectivity, data storage and analytics. This can be custom developed from scratch for specific customers, giving them a low cost option.
- **Enterprises:** This will come with integration with enterprise grade platforms like deviceWise platform from ILS. This platform gives scalability, reliability and robustness which enterprises require. This is an off the shelf cloud platform which is available in hosted model (for low cost entry) as well as in-premise installations.
- **Reference solutions developed**
- **Geo-fencing solution**

Track Vehicle
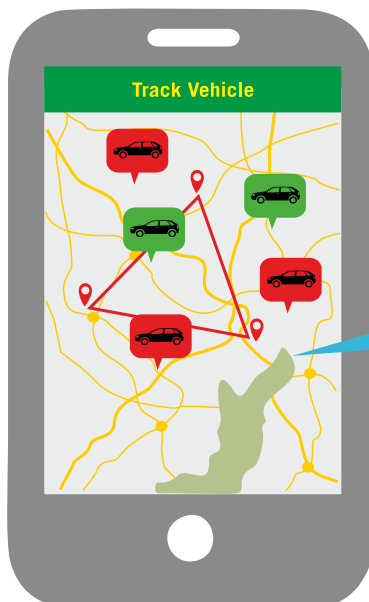
This solution has both mobile and web based variants. It allows the admin to define a geo fence on the maps for a set of vehicles. If the vehicles cross the geo-fence, the admin would get an alert of the event. The admin can then send an appropriate message to the driver which is displayed on the reference device inside the vehicle. The admin can continue to monitor the real time locations of the vehicles being tracked on the map.
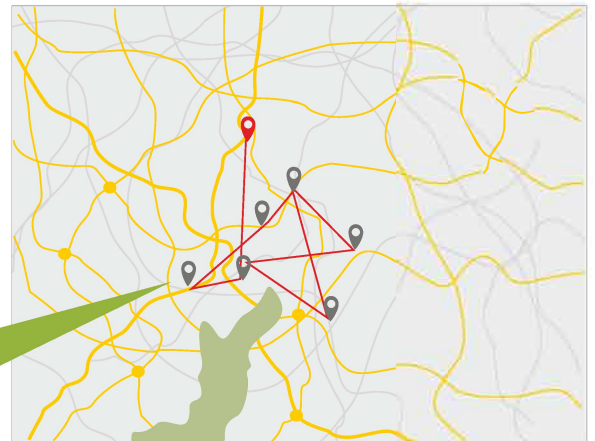
Vehicle tracking solution

This solution has been developed keeping in mind the scenario where 3rd party vendors are used for transportation. Solution is designed to monitor vehicle activity on predefined route and waiting time as a result of queuing at the depots etc. Vehicles will carry a SIM enabled GPS device which will give real time location update.

A command center for Admins to track and monitor vehicle activity in real time over Google map driven console. Flags to be raised if any inappropriate activity by the vehicle is suspected. SFDC was used as backend to optimize the total cost of ownership.

Order fulfillment and tracking solution

The solution was designed for workload Balancing, to decide on which Vehicle should take which route to fulfill Customers daily demand. Algorithm was developed to utilize vehicles effectively to maximize area coverage, to track vehicle's route plan and dynamically change it on need basis. The algorithm uses variables like Shortest Path, Goods Perishability, Customer Delivery Time, and Priority Customers among others.

The solution allows for reprioritizing delivery schedule; generate new route plan and real time order status tracking. SFDC was used as backend to optimize the total cost of ownership.

About Happiest Minds Technolgoies

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Business Contact

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