

# ROUTENET FOR ROUTE OPTIMIZATION

## Introduction

- Want to optimize your daily routes and lessen Logistics cost?
- Want to reduce the Kms driven and vehicles for your deliveries?
- Want to increase your operational efficiency and improve customer service?
- Want to reduce the time spent in the complicated process of human dispatching?
- Want to accommodate last minute changes in schedule and foresee future bottlenecks?

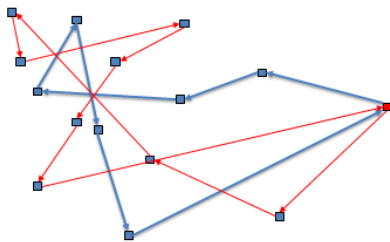
MapmyIndia RouteNet can help you tackle all the above issues. In the current scenario, where fuel prices are perpetually increasing, organizations incline to spend more on their Logistics costs and achieve very low levels of efficiency. The astronomical Logistic Investment of any company is on its vehicles and drivers. In case of distribution and pickup of orders, accumulation of orders leads to the intricate process of route planning where the objective is to accomplish distribution with minimal costs. It may be the same city, same areas, same roads, but every day is different, with a different set of challenges and constraints.

MapmyIndia RouteNet is an end to end, fully-integrated, customized and dynamic route planning solution that aids in efficient deliveries and pickups, which will in turn help to save up to 30% on the logistics costs and streamline the entire process without any compromise on quality and customer service.

## How does it work ?

### **Typical Dispatch scenario: Today's picture**

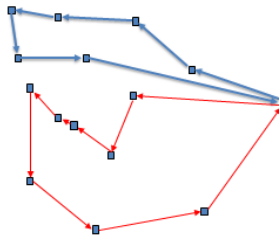
In typical scenarios, there are lists of customers to/ from which distributions/ pickups are to be done. The starting points (warehouses) can be one or multiple.



The concerned logistics person has an uphill assignment of planning a route which covers all points of distribution/ pickup and additionally incorporate petty constraints like time, conveyance capacity, customer windows of distribution, order priority, maximum conveyance driving time and many such more constraints.

## RouteNet

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Designed to be a tailor made solution, it considers constraints such as

- Vehicle type, capacity
- Location and permissions
- Customers location, priority
- Delivery date, time window and time on site

Additionally, the application respects all constraints of the organization's distribution model like

- Multi-trip distribution
- Usage of TP transportation service
- Cross-dock distribution, etc.

The application provides highly detailed reports and analysis for route planning taking into account various constraints. These include

- Driver manifests
- Delivery details
- Delivery summary
- Route maps
- Vehicle and driver utilization
- Delivery frequency and amount of delivered goods in specific geographical area

## **Integration with Legacy Systems**

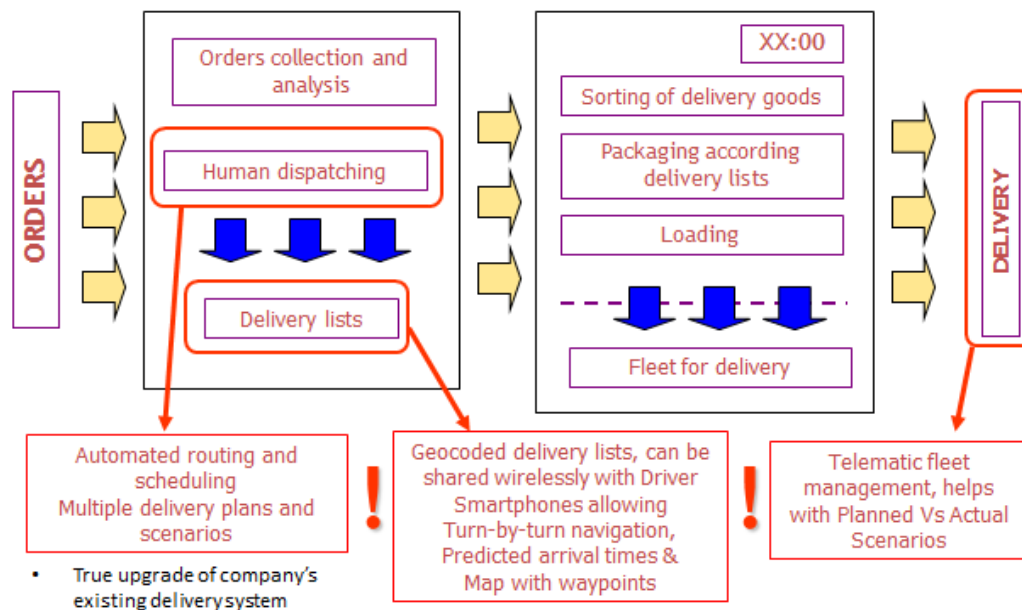
MapmyIndia's RouteNet solution blends into the existing system rather than replace it.

As represented in the block diagram below the red highlighted portions are the only ones that we propose to improve out of the whole order fulfilment process.

Human Dispatching is one aspect where a lot of time and effort is invested and results are not satisfactory. RouteNet automatically generates the routes taking into consideration all the possible constraints.

For delivery lists dispatching MapmyIndia has a separate mobile app (MMI Don't Panic) which can be directly integrated with RouteNet.

For the live GPS tracking of the deliveries being done, MapmyIndia's advanced Telematics application Mapmyndia Fleet works with RouteNet. Fleet provides highly accurate reports and planned vs actual analysis for the routes.



## Who all can use RouteNet?

- E-commerce Companies
- Food & Beverage Companies
- Dairy Companies
- Healthcare and Medical Companies
- Paper Distribution Companies
- Wine & Spirits Companies
- Fuel Companies
- Solid Waste and Recycling Industries

## USPs of MapmyIndia RouteNet

- RouteNet uses India's **best and most comprehensive maps** which are continuously updated
- **End to End Solution** (Warehouse, Office and Customers are fully linked)
  - Mapping (MMI Maps)
  - Geo Coding (MMI Enterprise Solutions)
  - Routing (MMI RouteNet)
  - Dispatch using Navigation (MMI Don't Panic Mobile App)
  - Vehicle Tracking (MMI Fleet, Real-time GPS tracking)
- **Customized Solution**, tailor made to individual business needs
- **Easy integration** with ERP/ WMS and also with CRM (MMI Fleet)
- Integration with **Legacy Systems** : RouteNet blends into the existing systems rather than replace them
- **Award Winning Routing Algorithm**: Designed along with experts from the Road & Transport Authority, Croatia

- Algorithm can cater to **growing needs of a business** by taking into account multiple parameters like Traffic Condition, Customer Requirements, Load/ Time Restrictions etc.

### **How will it benefit your Business?**

Benefits of RouteNet can be many across different areas including

- Significant reduction in mileage driven and/or working hours and vehicle use (up to 15% in rural areas and 30% in urban areas)
- Helps in tracking from a Planned Vs. Actual Perspective (Identification of Bottlenecks for better route planning next time), thus improving the planning process and overall business efficiency
- Fast and simple reaction to new requirements
- Improved utilization of vehicles
- Improved customer service
- Fast Return of Investment
- Reduction in administration costs
- Support in territory planning
- Support in strategic decisions making

## **Case Studies**

### **1) Transportation of school children**

An excellent example of MapmyIndia RouteNet efficiency is the pilot project that we have executed for School buses. Traffic in cities is mostly chaotic; especially during the rush hour periods of the day. From the transportation standpoint, the cities are itself very challenging; with bridges, very dense with numerous bigger and smaller streets which are not sufficient in supporting the current and future traffic needs. In addition, there are numerous automobiles and there is a strong demand for building new or alternative highways. For an individual this means that a stressful driving experience is unavoidable, mostly because all the mentioned issues cause a lot of traffic jams and lead to aggressive driving behaviour. In our case school children were transported with minibuses and the transportation itself is conditioned with numerous different constraints that had to be rightfully addressed.

At the beginning of the project we were faced with a transportation provider who owned 40 minibuses (vehicles), each minibus had a capacity of 16 seats. For the transportation of all 452 school children (spread out till both ends of the city) transportation provider used all 40 minibuses (vehicles) on a daily basis.

For the project that we have developed the following additional constraints were provided and had to be included:

- The children should be picked up from the exact address of their residence
- Each child is allowed to spend a maximum of 75 minutes in the bus
- The bus is supposed to bring the children to school 15 minutes before the school starts (before the start of their first class)
- On the return trip from the school the same children who were in the bus while going to school had to be transported back in the reversed order from the one while going to school, which doesn't exactly mean that the same route will be used

In the results of the project we were able to optimize and utilize the transportation provider's fleet of minibuses (vehicles) in such a manner so they only had to use 28 minibuses in order to transfer all 452 school children. Meaning that through our optimization we were able to decrease the number of used (minibuses) vehicles by 30%!

**Number of kilometers while transporting children to school totaled in 723,23 km with the average duration of 57 minutes.**

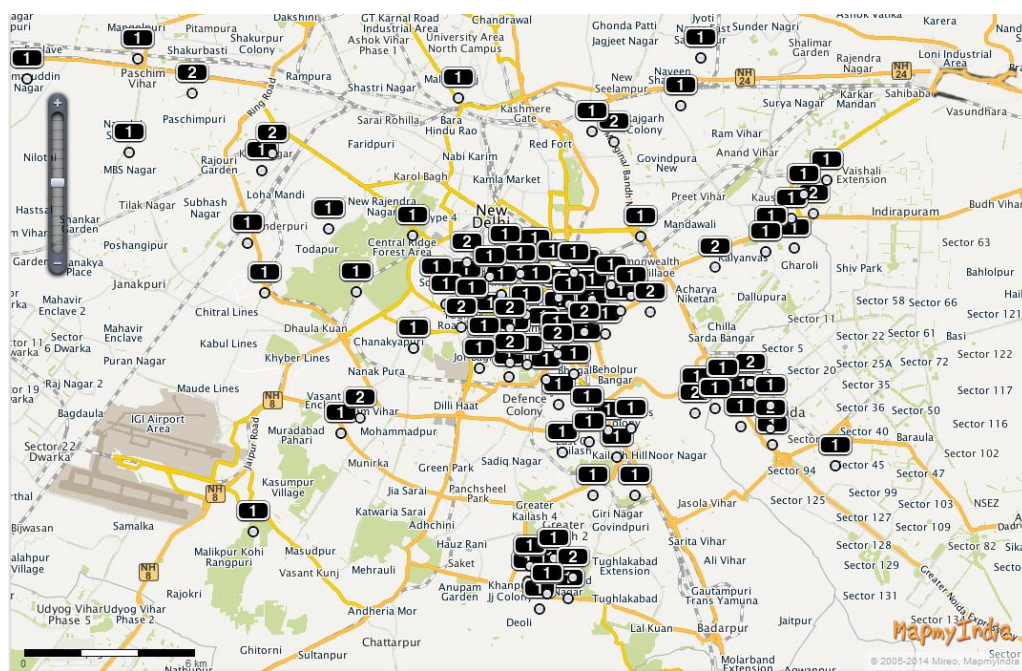
**Number of kilometers on the return trip (on the trip back) totaled in 787 km with the average duration of 62 minutes.**

## 2) Pharmacy Medicine distribution (pilot project)

### Constraints:

- All deliveries start from central depot
- Three series of deliveries per day:
  - at 10:00h (orders collected until 09:40)
  - at 13:00h (orders collected until 12:40)
  - at 16:00h (orders collected until 15:40)
- All vehicles must return back to central depot, at least 20 minutes before start of next delivery i.e. 12:40 and 15:40
- Vehicle capacity is defined as number of boxes
- Order quantity per delivery location is expressed as number of delivery boxes
- Delivery schedule should follow priorities of delivery orders:
  - 1 – highest priority
  - 2 – low priority
  - 3 – no priority
- Unloading time is 3 minutes (average real time)

### Delivery Locations



### Results:

#### Human Dispatching

Delivery start time	Number of vehicles	Total distance traveled
10:00	9	334 km
13:00	8	343 km
16:00	4	199 km

### Pilot Project Results

Delivery start time	Number of vehicles	Total distance traveled
10:00	6	283 km
13:00	6	309 km
16:00	3	177 km

### Savings:

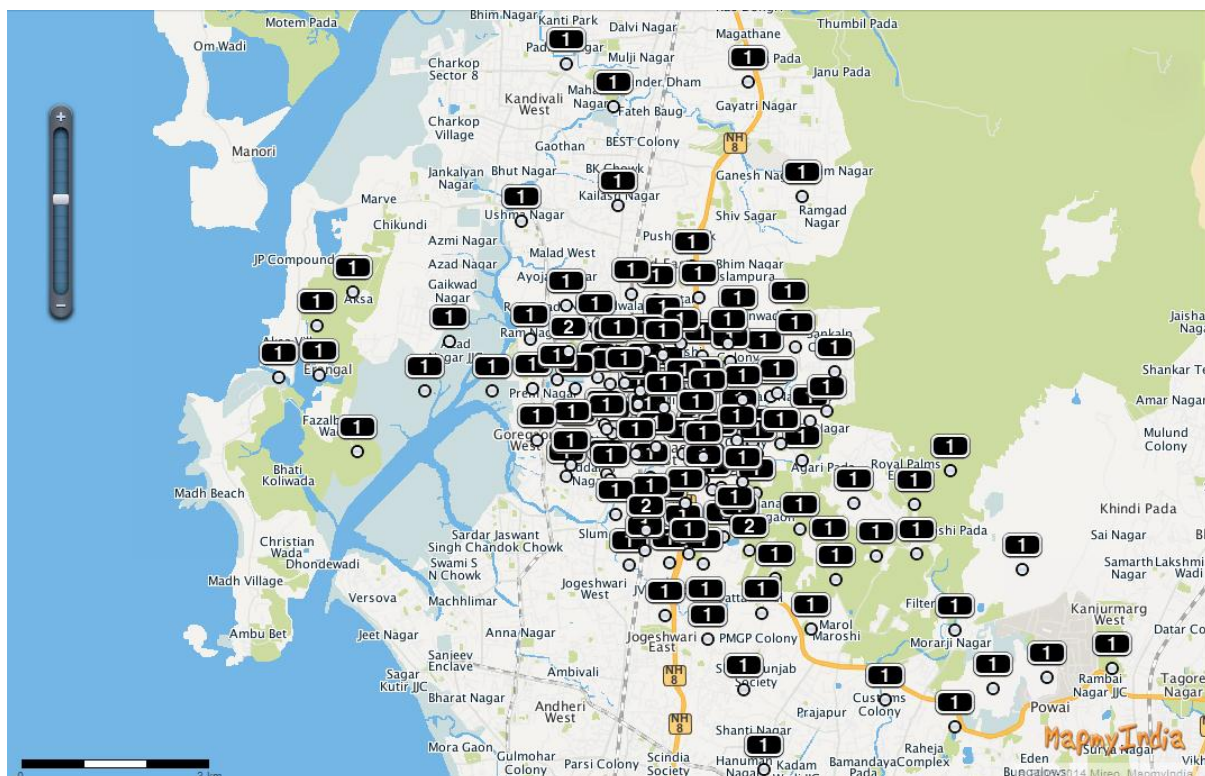
- ▶ Delivery at 10:00 – **33% less vehicles and 15% less km traveled**
- ▶ Delivery at 13:00 – **25% less vehicles and 10% less km traveled**
- ▶ Delivery at 16:00 – **25% less vehicles and 11% less km traveled**

### 3) Bakery products distribution

#### Constraints:

- All deliveries start from central depot/bakery
- Departure from central depot is dictated by production
- Time interval available for delivery at customer location is specified by each customer
- Vehicle capacity is defined as number of palettes
- Order quantity per delivery location is expressed in number of palettes
- Traffic patterns to be used for route calculation
- Unloading time depends on quantity of palettes to be delivered

#### Delivery Locations





## **Results:**

### **Human Dispatching**

Number of vehicles: 12  
Delivery locations: 250  
Distance travelled: 523 km

### **Pilot Project Results**

Number of vehicles: 12  
Delivery locations: 250  
Distance travelled: 335 km

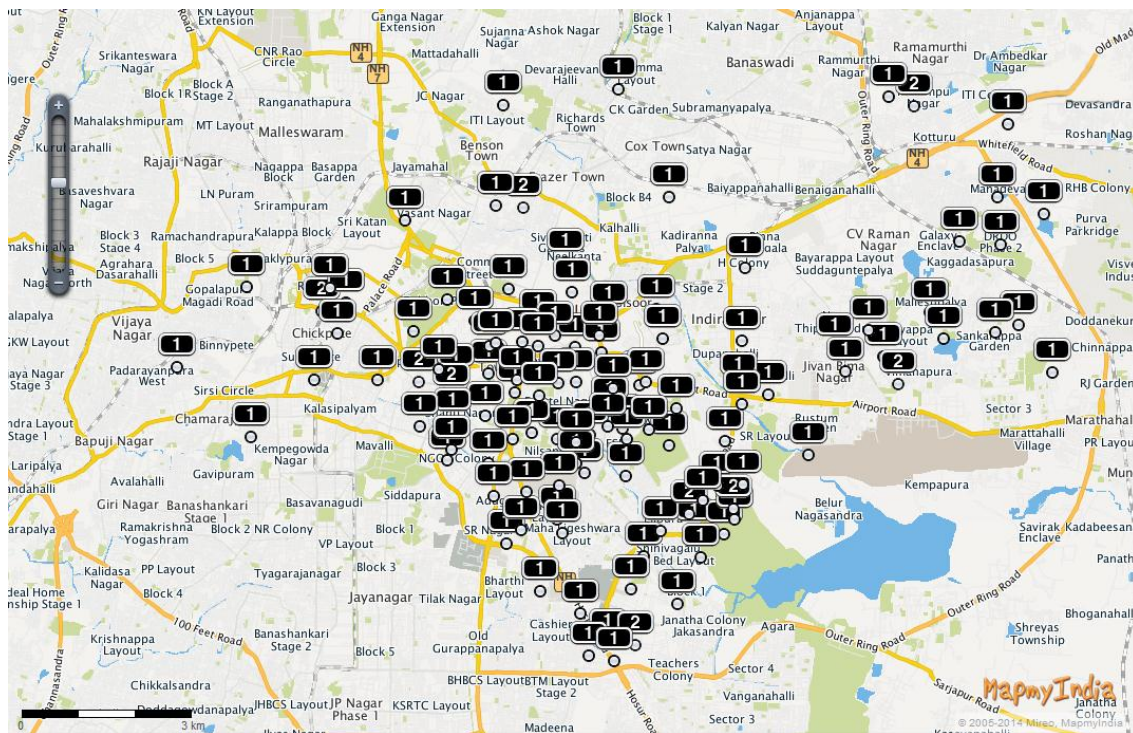
**Savings in mileage : 35,95%**

## **4) Newspaper distribution**

### **Constraints:**

- All deliveries start from central depot
- Departure starts at 4:00 (exceptionally at 4:45) when newspapers are printed and packed for delivery
- Time interval available for delivery at customer location is specified by each customer
- Capacity of each vehicle is 1.1 tons
- Order quantity per delivery location is expressed in kilograms
- Average speed of vehicles is approximated to 30 km/h
- Newspaper unloading time depends on delivery quantity

### **Delivery locations:**





**Results:**

**Human dispatching**

- Start at 4:00
- 6 vehicles
- Total distance travelled 218 km

**Pilot project results:**

- Start at 4:00
  - 4 vehicles **(33% less)**
  - Total distance traveled: 127 km **(42% less)**
- 
- Start at 4:45
  - 6 vehicles
  - Total distance traveled: 157 km **(28% less)**