daffodil

Customer Success Story

Developing an IoT based route planning system to reduce shipment damage

asianpaints

Customer:	**Asian Paints**
Country:	**India**
Industry:	**Manufacturing**
Our Role:	**Product Engineering**

About the Client

Asian Paints is an Indian multinational paint company, headquartered in Mumbai, Maharashtra. It deals in manufacturing, selling, and distribution of paints, coatings, home decor & bathing products, etc. The company's manufacturing operations encompass 15 countries of the world. It is India's largest and Asia's third-largest paints corporation with a revenue of 171940 million.

10,000+	**50+**	**97%**
kms of roads scanned	vehicles integrated	reduction in in-transit damages

The Situation

Asian Paints has one of its best-performing manufacturing plants in Kansa (Uttar Pradesh). This plant has been incurring huge losses due to in-transit damage of goods. Spillage, denting, leakage, and slouching of paints were converting their in-transit goods into hazardous waste, causing an annual loss of around $8 million.

This situation was highly dependent on two significant factors: driving behavior and road conditions. Asian Paints conduct a road survey every 3-month to map these conditions. However, this practice was expensive and was performed after a long gap. Also, since it was manual, it was not up to the required standards and thus the losses continued. Hence, Asian Paints approached Daffodil Software to:

- Build an IoT based tracking system that would provide a measure of real-time road conditions such as potholes and rough terrains during transit. This system should record and warn drivers exhibiting aggressive behavior in real-time to ensure reduced damage and improve delivery.

- Integrate state-of-the-art machine learning algorithms with performance modeling algorithms that could allow the system to detect road conditions and notify drivers in real time

The Solution

Asian Paints have over 100 critical dispatches every day from their Kasna manufacturing plant. Therefore, before going for full-scale implementation, they requested team Daffodil to create a Proof of Concept (POC) which could display their expertise in tracking market vehicles at the Kasna Plant. For this, Daffodil planned to track 5 vehicles on 4 routes which constitute more than 80% of the in-transit damage from the Kasna plant. These 4 routes scaled more than 10,000 km in total.

An IoT-based learning system was developed that helps in detecting vehicle and road events for market vehicles. Considering these requirements, customized devices were integrated into the vehicles to determine road & driving characteristics.
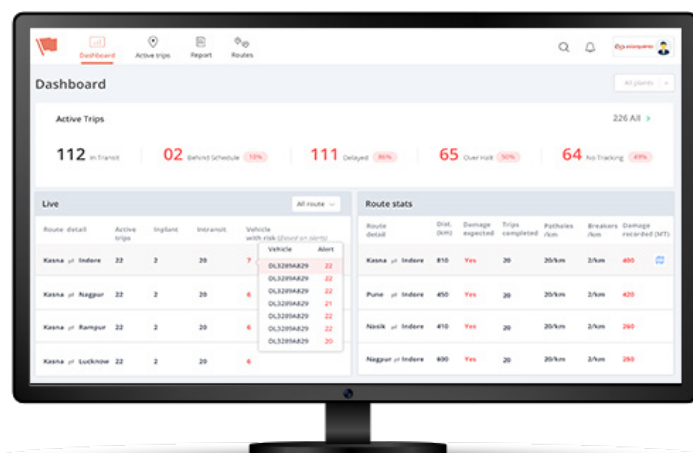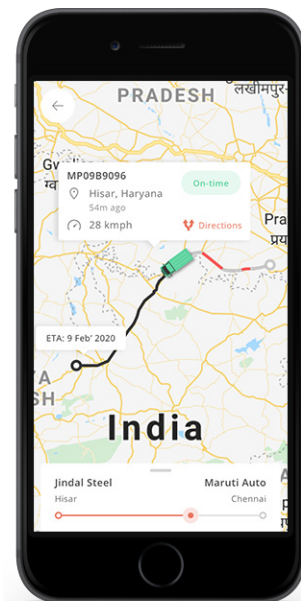
By the end of the PoC, the data obtained from the sensors and the app helped in making observations and recommendations that could reduce damages. Out of five vehicles that were tracked from the plant, two displayed a high tendency for material damage. The app helped in identifying potholes of severe intensity throughout the journey. Also, it helped in detecting delays in delivery due to breakdowns for one of the vehicles.

The app provides 100% traceability of vehicles from material loading to delivery stage, gives a real-time updated map of the road condition from plant to consignee, and helps to analyze the trip condition requirements for a safe trip.

After the success of the PoC, team Daffodil started working on a full-fledged solution that would help team Asian Paints in on-time delivery with ETA, create a daily trip report, help in location mapping, and more.
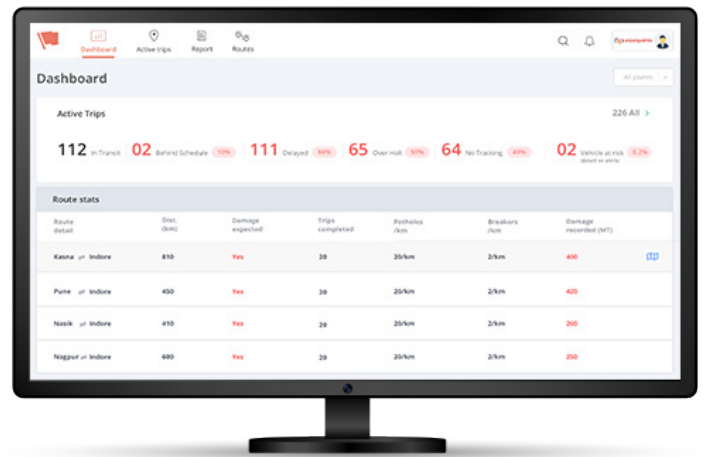
The Impact

The client has been extremely satisfied by the way Daffodil has executed their vision and have planned for further development of the system. They have observed a significant reduction of in-transit damages, reduction of direct material and catalyst loss, and reduction of hazardous waste disposal costs. The most delayed lanes experienced an improvement between 80-85%, which turned out to be a significant boost in a plant's efficiency.

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50+
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97%
reduction in in-transit damages

Technology Stack

● Node JS   ● React JS   ● React Native   ● MongoDB   ● Google Maps API

About Daffodil

Daffodil Software is a software engineering partner to 100+ organizations across the globe and has been helping them in making their software products more robust, teams more productive and processes more efficient. Our ability to look beyond technologies to deliver innovative solutions with scale and speed has been lauded by our clients as well as the tech community worldwide.

Since our inception, we have invested in organic growth; building on our engineering capabilities, organizational processes, and culture required to deliver a truly collaborative ecosystem for solving technology challenges. At the core of Daffodil lies a culture rooted in innovation, learning and a result-oriented mindset.

Awards & Accolades

GRANDVILLE, USA

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