A 500 word summary describing the scope and content of the project

Introduction

The Indian economy is booming, trade is increasing and the standard of living is going up. This has resulted in a higher emphasis on our nation's infrastructure. This is particularly true for the roads in the country as they remain the most common mode of transport for the people.

Traffic on Indian roads has been steadily increasing by 7-10% per annum. This has led to about 25%-30% of national and state highways being heavily congested with truck speeds of around 25-40 km/hr.

Therefore, with an objective of achieving the world class road infrastructure in the country, the Government has successfully ensured the participation of private sector in road development. It is expected that the share of private investments shall go up from 5% in 10th plan to 36% in 11th plan.

RInfra's road business

Presently RInfra is developing 968 Kms of roads dispersed across 6 different states of India worth 11700 crore and has emerged as the largest developers of roads and highway projects in India. RInfra has pioneered in deploying various state-of-the-art IT initiates like **Enterprise Road Management System (ERMS)**, Roads-Network Operations Center (NOC) and other IT systems to improve the operational and financial excellence.

Problem Statement

Prior to foray in the road business, RInfra had conducted a detailed survey to understand the pain areas faced by the traditional companies in the road business.

The following were the key observations of the industry survey.

- Absence of central monitoring tool to monitor widely dispersed toll plazas
- Lack of proper and efficient IT systems leading to 15-20% revenue leakage due to misrepresentation of vehicles (i.e. a truck having higher toll being classified as a car etc)
- Absence of automated revenue audit module on Daily/Shiftwise basis which lead to late identification of revenue fraud
- Paper based processes and filing system leading to inefficient utilization of space, delay in decision making, dependency on individuals etc
- Insensitivity towards environment despite of vehicles and hence roads being major contributor of pollution.
- Absence of tool to capture accident prone areas, accident analysis, recording and alert mechanism
- Non availability of timely information/communication during accidents resulting in victims not getting timely treatment and losing their life

In-depth study was conducted to find underlying causes that may contribute to the above pain points.

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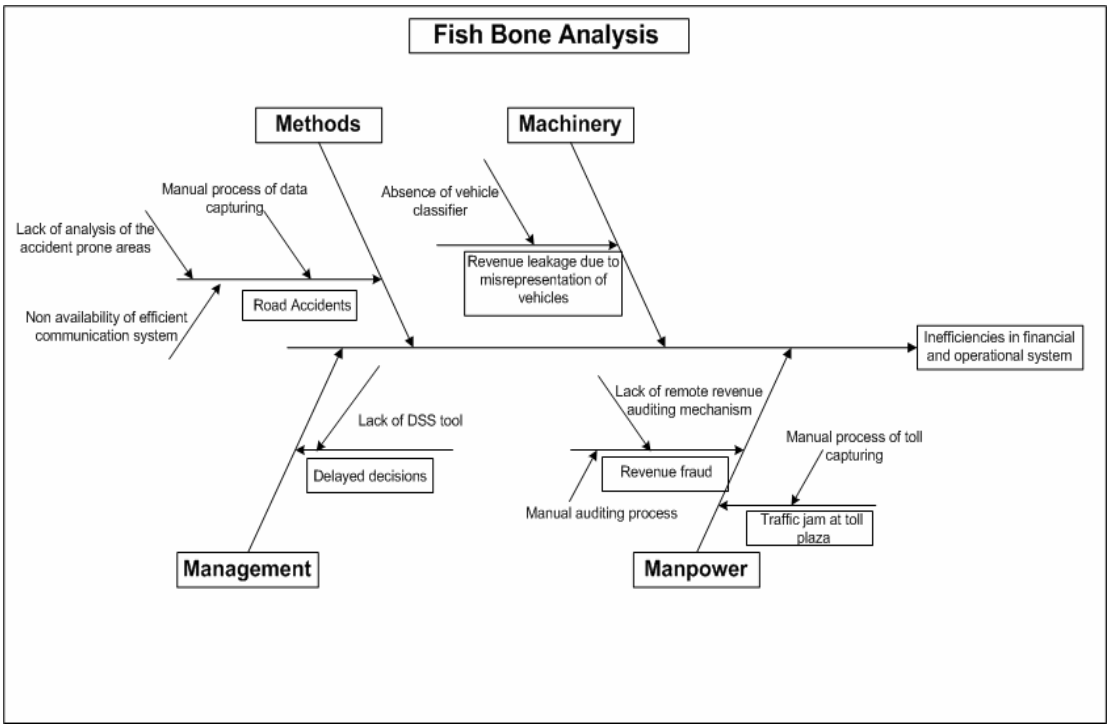

Fish bone diagram – Fig 1

All the mentioned pain areas were analyzed with the help of a Cause-Effect (Fish Bone) diagram Refer Fig – 1.

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RInfra's Solution-Enterprise Road Management System

RInfra studied the pain areas faced by the traditional organisation in the road business and accordingly a core group was formed comprising of all the stakeholders in the road business alongwith with IT team. The team explored all the ready-to-deploy solutions in the industry to address the pain areas but the solutions could not meet the requirement hence a strategic decision was taken to in-house develop a solution.

Accordingly **Enterprise Road Management System (ERMS)** was conceptualized and deployed for its road business

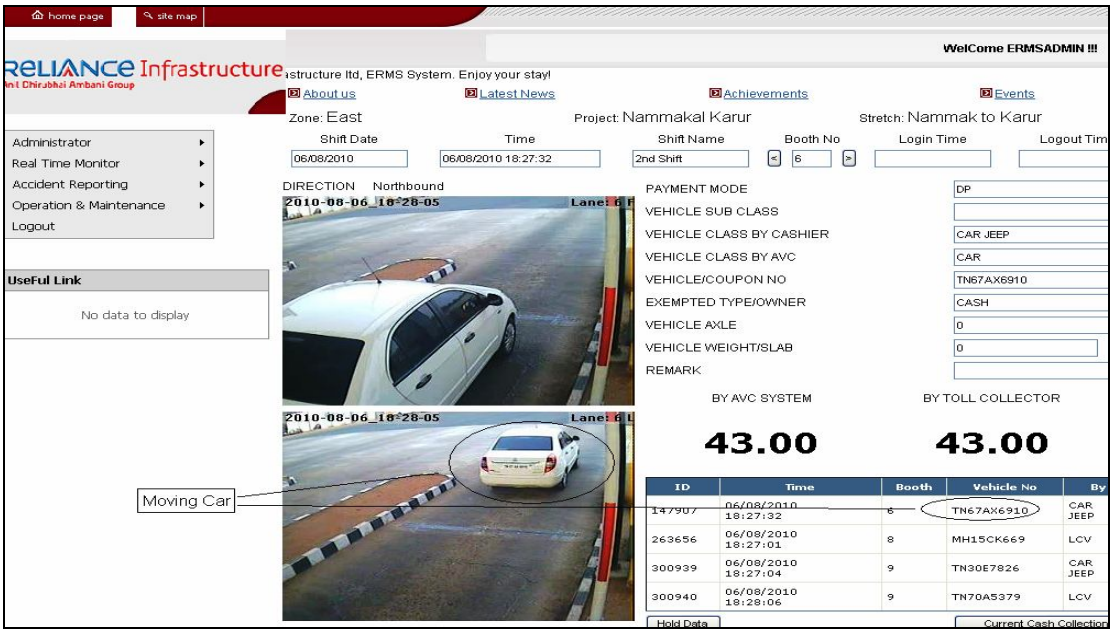
The **Enterprise Road Management System (ERMS)** has the following basic modules

1. Real Time Monitoring Module
2. Central MIS data reporting Module.
3. Accident Reporting Module
4. Operation & Maintenance Module.
5. Environment Reporting Module.

1. Real Time Monitoring Module

Toll Plaza is the revenue generating point and hence most critical from business perspective. They are located at geographically dispersed locations; operate in silos and most of the operational activities including Toll collection are managed by out sourced contractual staff locally.

ERMS provides **Real Time Monitoring Module** that captures real time details of Plaza operation accompanied with Images – leading to Centralized Control Room. Refer Fig-2. The system has helped in navigating across all the Toll Plazas from a centralized location thus providing a **single sign-in** to monitor all the Toll plaza's.



Real time monitoring module-- Fig-2

2. Central MIS data reporting Module

Toll plazas of traditional organisation is road business still operate in silos. They have deployed multiple solutions from different vendors, each has its unique way of operation and reporting.

As a result Road Company end up with multiple reporting consoles, number of report format etc, leading to difficulties in business analysis.

“Key challenge for any Road business company today is to have single reporting console that will provide complete report of a business.”

ERMS is the front-end and acts as a Corporate Dash board which is integrated with the Toll Management Server (TMS).

3. Accident Reporting Module

The data related to accident records are available with individual. In case of accidents, the information of nearby police station, hospitals, repair garages, insurance agencies etc is not available in time. This results in mismanagement of accident rescue operation.

ERMS provides a web based user friendly interface for reporting of accidents at Roads enabling Centralized Accident records, workflow management for communication to all associated agencies/partners, Mapping on GIS for marking of accident spot, recording of video images leading to data base for further analysis and initiation of corrective actions for reducing/eliminating accidents.

4. Environment Reporting Module

Single console for capturing and reporting various environment parameters, measurement of various Environment Indexes, impact analysis , trend of index and corrective measures to flatten the index curve.

5. Operation & Maintenance Module

O&M module provides work flow based web application for capturing various operational activities. Standardize the operational process across various projects. Single console for managing multiple site operational activities. This includes processes of repair works, site inspection reports of consultants, communication with NHAI, Scanning and Digital Document Management for efficient storage and retrieval of documents.

Communication Architecture

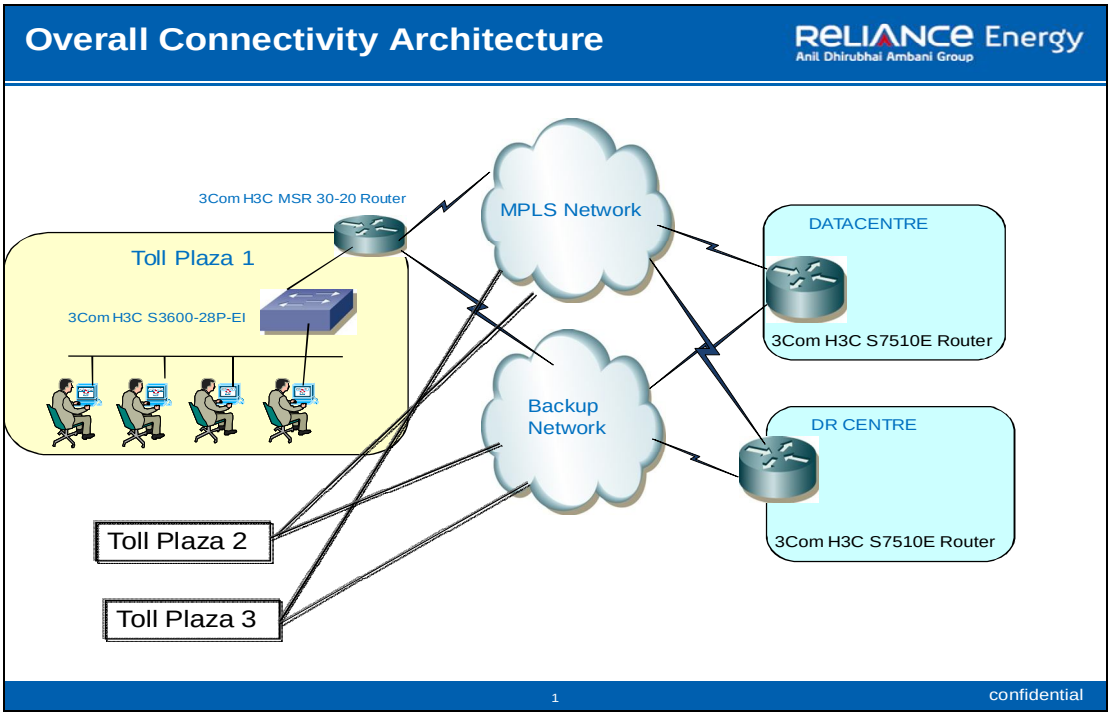


Fig - 3

The ERMS system captures the data from the remotely located, geographically dispersed road sites. The sites have redundant connectivity from separate service provider hence incase of failure of primary link the communication switches to the secondary link. Refer Fig – 3

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Abbreviations

ERMS: Enterprise Road Management System

TMS: Toll Management System

NHAI: National Highway Authority of India

NOC: Network Operations Center