**ABSTRACT**

The explosively growing demand of internet of things (IOT) has rendered broad scale advancements in the fields across sensors, radio access, network, and hardware/software platforms for mass-market applications A Cost-effective IOT solution consisting of device platform, gateway, IOT network and platform server for smart railway infrastructure. The IOT solution applied for the smart railway application makes it easy to grasp the condition information distributed over a wide railway area. One of the important issues for railway operators is maintenance of their railway systems. The railway system consists of various entities including train vehicles, tracks, facilities (te. tunnels and bridges), catenary and electrical devices in trackside. The proposed railway locomotive monitoring systems as the facilities like estimation of the fuel consumption & distance covered by train t detect unwanted objects on tracks & any cracking in the tracks and also provide health services to the passengers. Project describes the range of sensing technologies has expanded rapidly, whereas sensor devices have become cheaper. This has led to a rapid expansion in condition monitoring of systems, structures, vehicles, and machinery using sensors. Key factors are the recent advances in networking technologies such as wireless communication and mobile ad hoc networking coupled with the technology to integrate devices. It can be used for monitoring the railway infrastructure such as bridges, rail tracks, track beds, and track equipment along with vehicle health monitoring such as chassis, bogies, wheels, and wagons. Condition monitoring reduces human inspection requirement through automated monitoring, reduces maintenance through detecting faults before they escalate, and improves safety and reliability. This is vital for the development, upgrading, and expansion of railway networks.

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| 2 | | MEMS-Micro Electro Mechanical Systems | 2 |
| 3 | | IR-Infrared | 2 |
| 4 | | LCD-Liquid Cell Display | 2 |
| 5 | | Wi-Fi Wireless Fidelity | 2 |
| 6 | | M2M-Machine to Machine | 4 |
| 7 | | M2SP-Machine to Machine Service Platform | 5 |
| 8 | | QoS-Quality of Service | 6 |
| 9 | | OFDMA-Orthogonal Frequency Division Multiple Access | 6 |
| 10 | | MIMO-Multiple Input Multiple Output | 6 |
| 11 | | UART-Universal Asynchronous Reciever Transmitter | 7 |
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