**DEPARTMENT OF ELECTRONICS AND COMMUNICATION**

**ENGINEERING**

**IBM – LITERATURE SURVEY**

**PROJECT TITLE**

**SMART SOLUTIONS FOR RAILWAYS**

(2022-2023)



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**LITERATURE SURVEY**

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| **S.NO** | **TITLE OF THE PROJECT** | **ADVANTAGES** | **DISADVANTAGES** | **TECHNOLOGY USED** |
| **1.** | 5G Key Technology For Smart Railways | 1. It will enable closer spacing between trains  2. Train to Train communication  3. It will enable virtual coupling | 1. High equipment cost  2. Enormous need of infrastructure | 1. Millimetre wave  2. NOMA  3. Network slicing  4. Massive MIMO  5.URLLC |
| **2.** | Internet of Things for Smart Railway: Feasibility and Applications | LoRa is more advantageous in terms of power consumption than NBIoT, and NB-IoT has an advantage in terms of data latency | Circuit design schemes to achieve low power consumption and high reliability Technology | Using IOT |
| **3.** | Electrical Power Distribution Design & Voltage Profile Improvement for Metro Railway Station | We have designed and analyzed a new 33kv electrical distribution system in ETAP software | 1.High capital  2.It depends on electricity. If there is any interruption in power supply it went be fail to drive the locomotive | Using ETAP |
| **4.** | Energy Efficiency of a Railway Line Supplied By 3KV supply system | 1. Energy efficiency is more  2. It act as both Inverter and as an Active power filter | There is no information on the use of Inverter or Storage device in Substations | Power electronics switching technology |
| **5.** | Improved modelling for wind turbines on trains | 1.Effecctive energy storage system  2.Potential for grid connection from a savonics wind turbine based generator | 1.Unpredictability  2.Enhanced vertical mixing due to turblance generated by wind turbine | Permanent magnet synchronous generator(PMSG) |
| **6.** | Application of smart computing in Indian railway systems | To induce rail executives to build rail systems that are smarter and efficient | The global rail industry struggles to meet the increasing demand for freight and passenger needs | Infant sector of technology |
| **7.** | Analysis of Experimental Railway point electric heating system | 1.This system Is introduced due to its simplicity and efficiency in terms of cleaning the snow from points | Switching on and off method for electric heating is manual | Pulse width modulation |
| **8.** | Automated level crossing A- Futuristic solution enabling smart city infrastructure | 1.GPS based automated Lc will present accidents  2.Human errors will be avoided | 1. Signal from satellite not received at a time.It will lead to accidents | 1.Global positioning system (GPS) |
| **9.** | Controlling Railway Gates Using Smart Phones by Tracking Trains with GPS | An important advantage of the Android SDK is the low; processes and RAM requirements | The Android application can't be used by the third party | Internet using GPS |
| **10.** | The IDex case study on the safety measures of IOT-Based railways infrastructures | 1.Reliablity  2.Availability  3.Safety  4.Security | 1.Required Time constraints | Artificial intelligence |