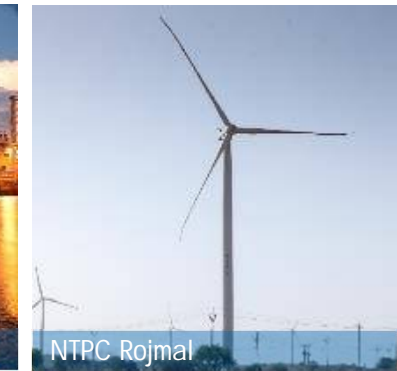




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Reverse Camera System for Coal Rakes

PRESENTED BY:-

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NTPC BONGAIGAON

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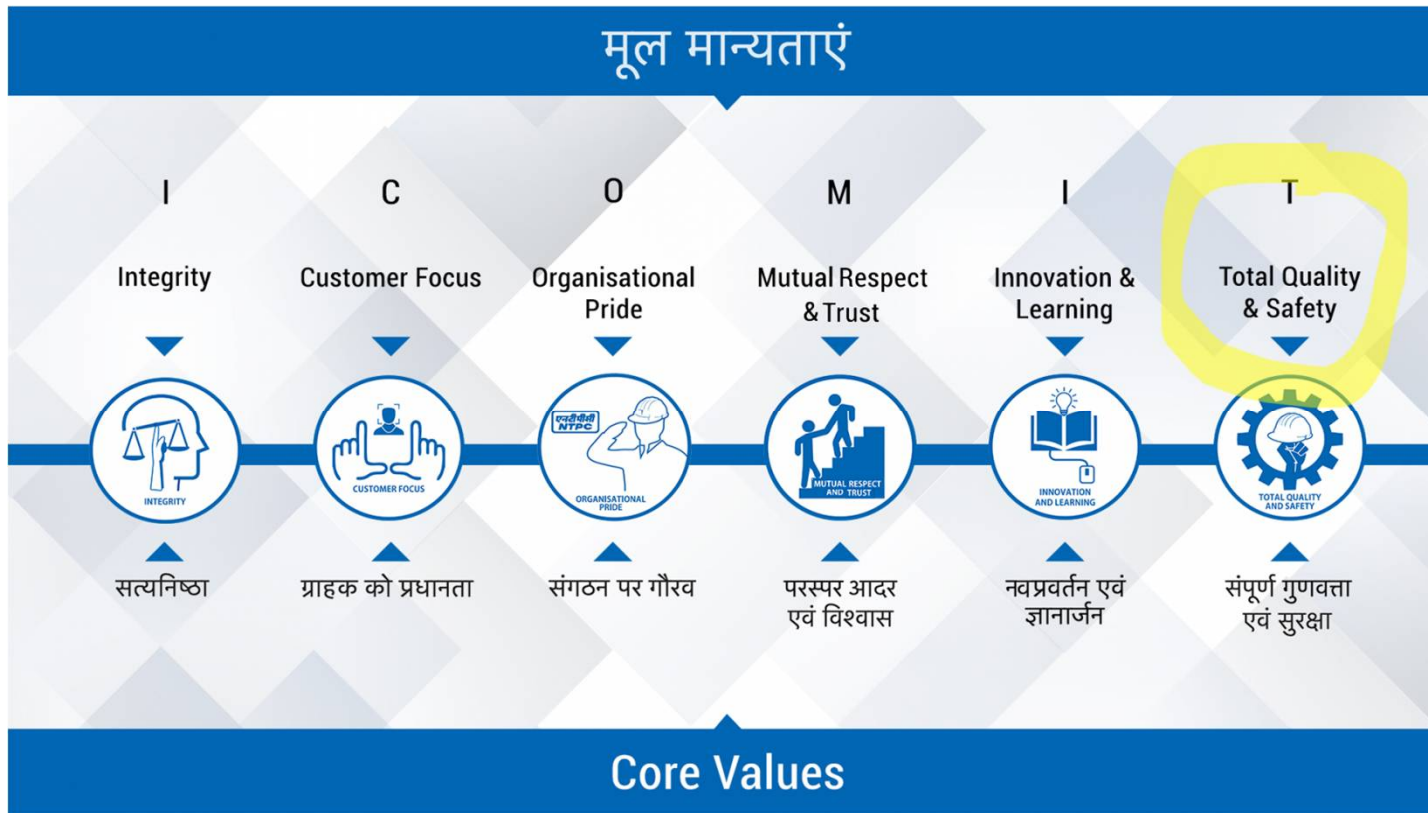
- ❑ INTRODUCTION
- ❑ IDENTIFICATION OF PROBLEM
- ❑ FINDING A SOLUTION
- ❑ DESIGNING OF SOLUTION
- ❑ EXECUTION
- ❑ RESULT
- ❑ COST ANALYSIS
- ❑ IMPLEMENTATION IN OTHER PROJECTS
- ❑ FUTURE MODIFICATIONS
- ❑ CONCLUSION



SAFETY FIRST



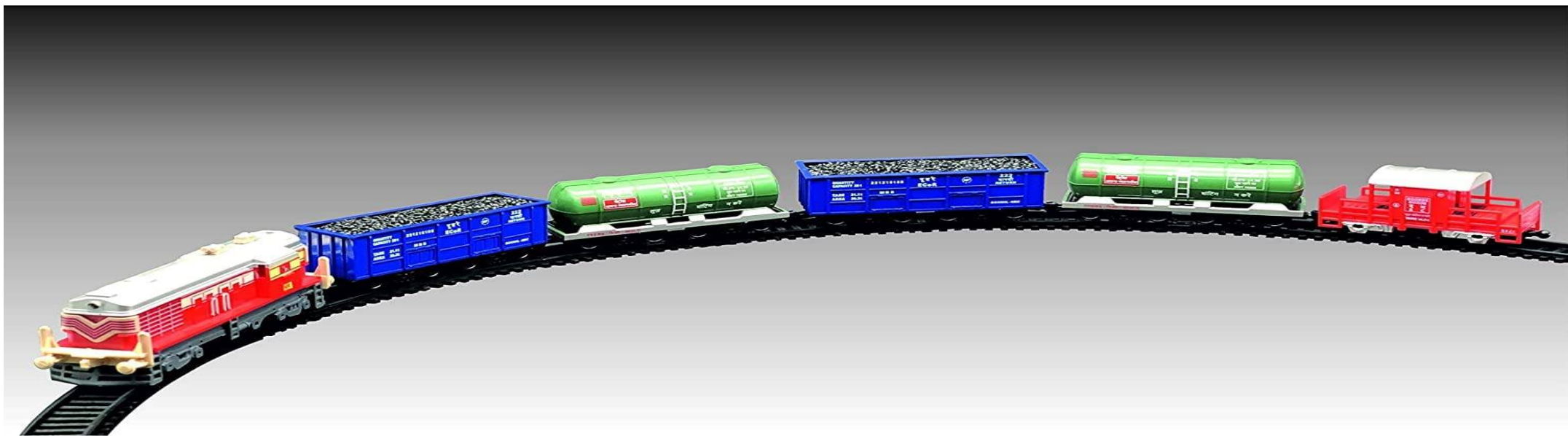
NTPC CORE VALUES



RAIL & SAFETY ASSOCIATED WITH IT



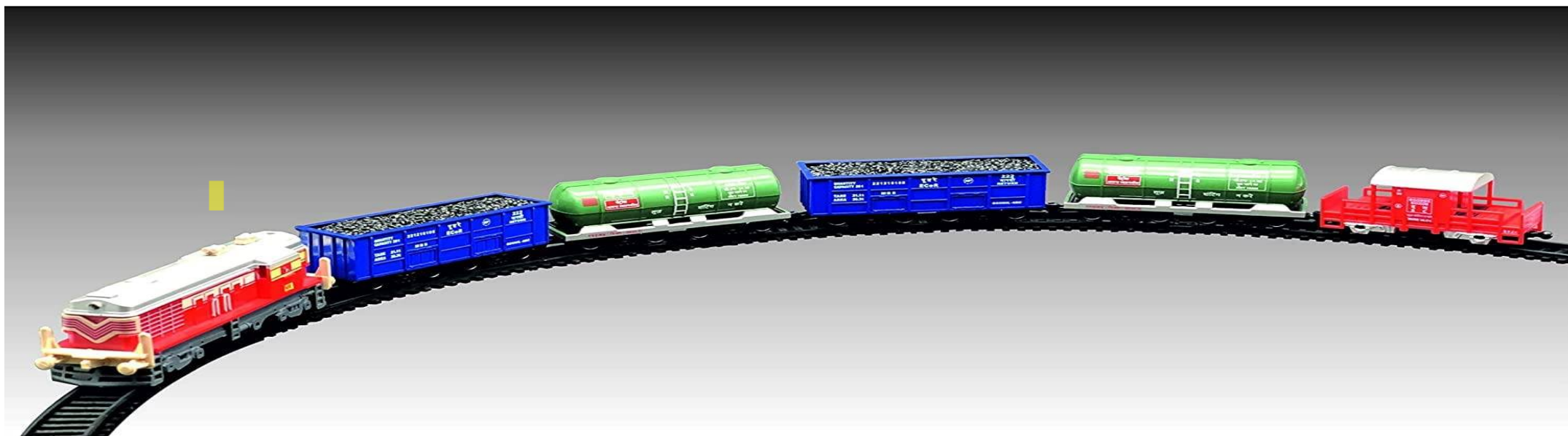
Rail is the primary method for Coal Transportation in NTPC Plants.



RAIL & SAFETY ASSOCIATED WITH IT



In a coal Rake, One End Locomotive is attached & another end is Guard Van.
Normally, Coal Rakes are meant to move in the forward direction.



RAIL & SAFETY ASSOCIATED WITH IT



But, in all NTPC sidings, it is required to move in the backward direction also for shunting, placement of Rakes in Hopper, Wagon Tippler etc

The Typical Design of BgTPS Siding forces us to do Reverse Placement of Rakes for 2-4 KM



SAFETY ISSUE IN REVERSE MOVEMENT



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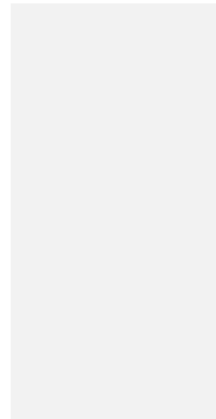
News

Kerala India World Columns More+

Railway official loses leg in freak accident during train shunting in Thiruvananthapuram

17 May 2022, 07:04 AM IST

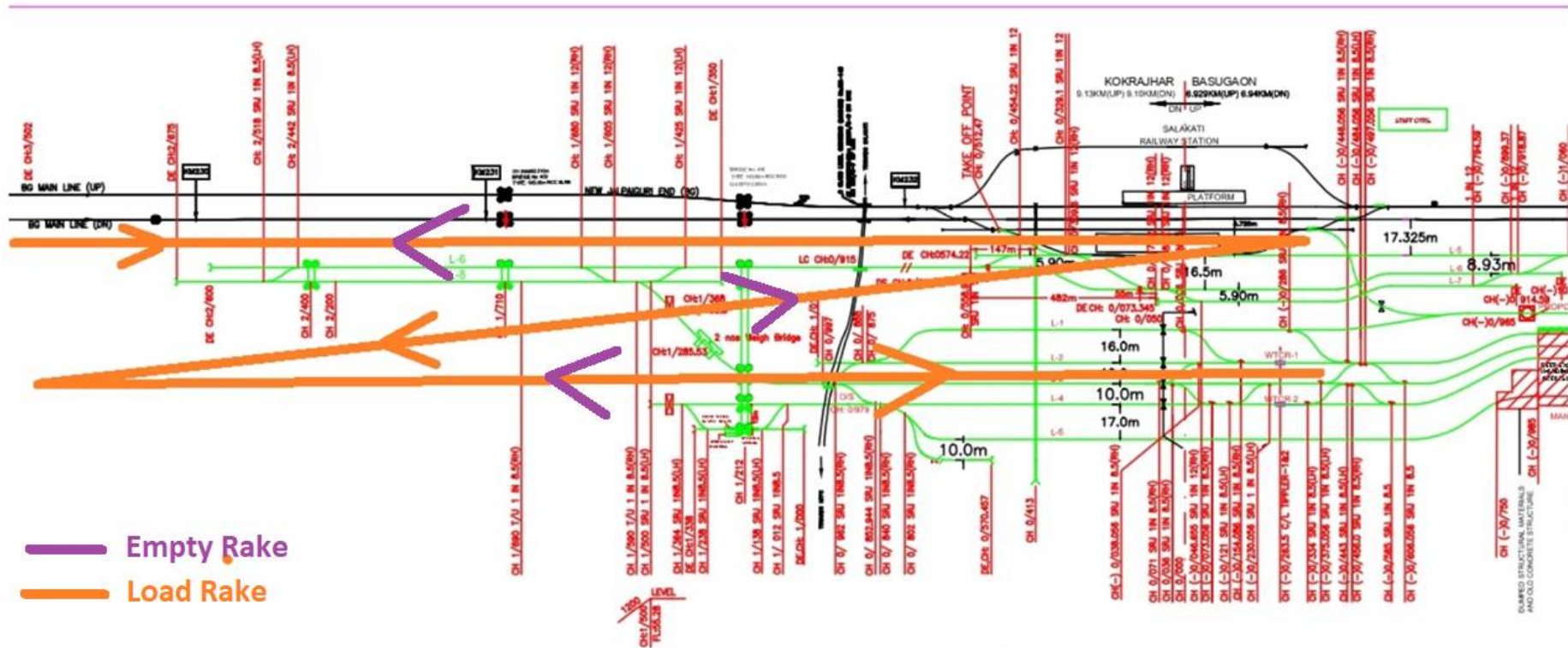
Senior Section Engineer Ram Shankar is the one who lost his leg in the accident.



1. Recent Fatal Incident in one of our NTPC Stations while Rake Shunting



Typical Design of BgTPS Siding



MODIFIED SCHEMATIC PLAN OF THE PROPOSED RAILWAY SIDING OF NTPC-BgTPP AT SALAKATI SHOWING HI



RAIL & SAFETY ASSOCIATED WITH IT



Moreover, we have three numbers of these type Level Crossings



1ST solution

Remote Operated
Portable Wireless
Electronic Flasher Cum
Buzzer in January 2021





Assam

Assam: Remote-operated portable alert system introduced in NTPC Bongaigaon

by **Rinoy Basumatary**
January 6, 2021 6:31 pm



Home > Northeast News > Assam

Assam: Remote-operated portable alert system introduced in NTPC Bongaigaon

by **RINOY BASUMATARY**
KOKRAJHAR, January 6, 2021 6:31 pm



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NEWS FLASH/
न्यज फ्लैश

Remote operated portable alert system introduced at NTPC Bongaigaon

Reverse Movement of Train is not recommended as it is unsafe in any power plant working environment and its operations. At NTPC Bongaigaon siding, it is a constraint to move rake in reverse way for placement of coal rakes

alert system

BY PSU CONNECT - DATE: 06-01-21

Facebook, Twitter, LinkedIn, Pinterest, Plus icons

Bongaigaon: Reverse Movement of Train is not recommended as it is unsafe in any power plant

COST – Rs 15,000/- only

IT WENT VIRAL & IMPLEMENTED IN PAN NTPC

Still Loco Driver Is Blind during reverse placement of Rake!



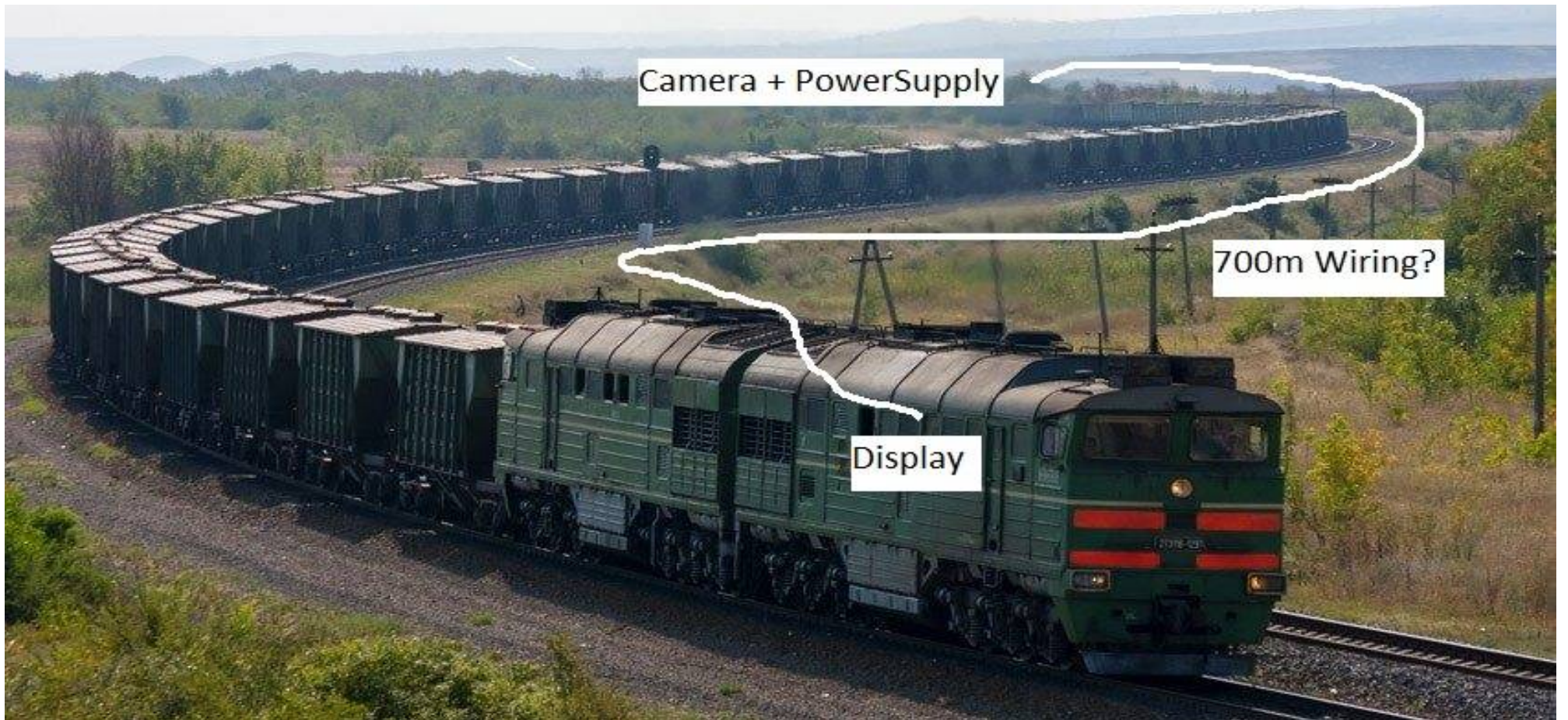
Car Reversing Old Days



Why Not Back Camera for Loco Pilots also?



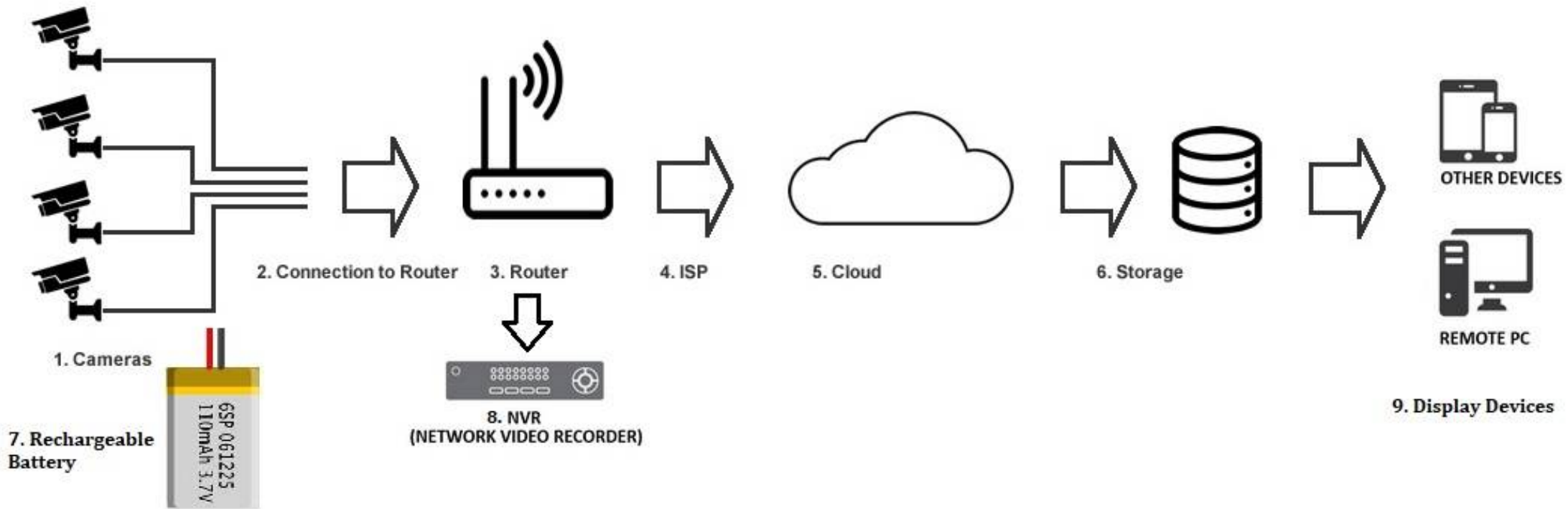
Problem



2ND SOLUTION



Bongaigaon Rake Back Camera Network Diagram



PERMANENT
FIXING OF
CAMERA



MODIFICATION



**PORTABLE
CAMERA**



RESULT



WIRELESS
DISPLAY IN
LOCOMOTIV
ES



SOLUTION



FURTHER MODIFICATION

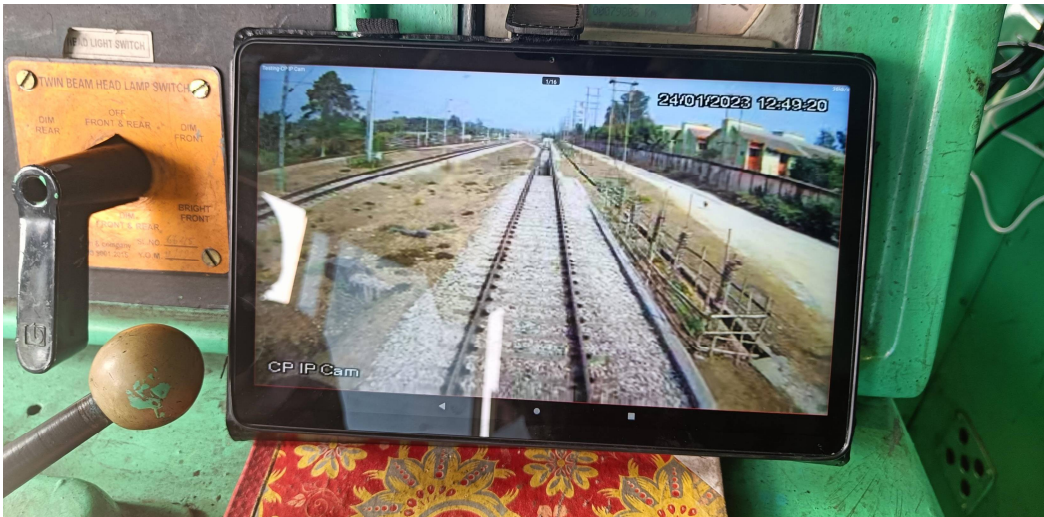


**ROBUST,
LIGHT
WEIGHT,
PORTABLE
SYSTEM**



REALTIME BACK CAMERA DISPLAY TO PILOT





Cost Analysis



Water, Dust, Vibration Proof Camera – Rs 8,000

NVR & Router – Rs 15,000

Rechargeable Battery – Rs 4000

Cable – Rs 1000

Memory Card – 1500

Cloud Store License – Rs 2500/Year

Fabrication – Rs 4000

Two 4G SIM Cards – 499x12*2/Year - Rs 11,976

Tablet – Rs 15,000

Total – Rs 62,976/-



BENEFIT



In Just RS 62,976/-



**GIVEN EYES TO THE LOCO DRIVERS WHILE RAKE REVERSE
MOVEMENT AND ENHANCED SAFETY.**



BENEFIT



In Just Rs 62,976 /-

GIVEN EYES TO THE LOCO DRIVERS WHILE RAKE REVERSE MOVEMENT AND ENHANCED SAFETY.

IT IS NOT A REPLACEMENT OF EXISTING SAFETY MEASURES LIKE PORTABLE BUZZER, WALKIE TALKIE SYSTEM & PERSONNEL. IT IS ADDITIONAL SAFETY MEASURES.



USABILITY



1. WE WILL DO SECURE INSTALL ONE TABLET PERMENTANTLY IN EACH LOCOMOTIVES THROUGH M/S RITES LIKE WE HAVE INSTALLED GPS IN LOCOMOTIVES
2. EVERYONE HAS SMART DEVICES, EACH LOCO PILOT CAN VIEW IT USING HIS MOBILE ALSO WITH THE APP INSTALLED
3. TECHNOLOGY IS PROVEN TECHNOLOGY.
4. EXISTING CLOUD, MOBILE APPS, TABLETS & CCTV CAMERA TECHNOLOGIES ARE USED TO INNOVATE THIS.



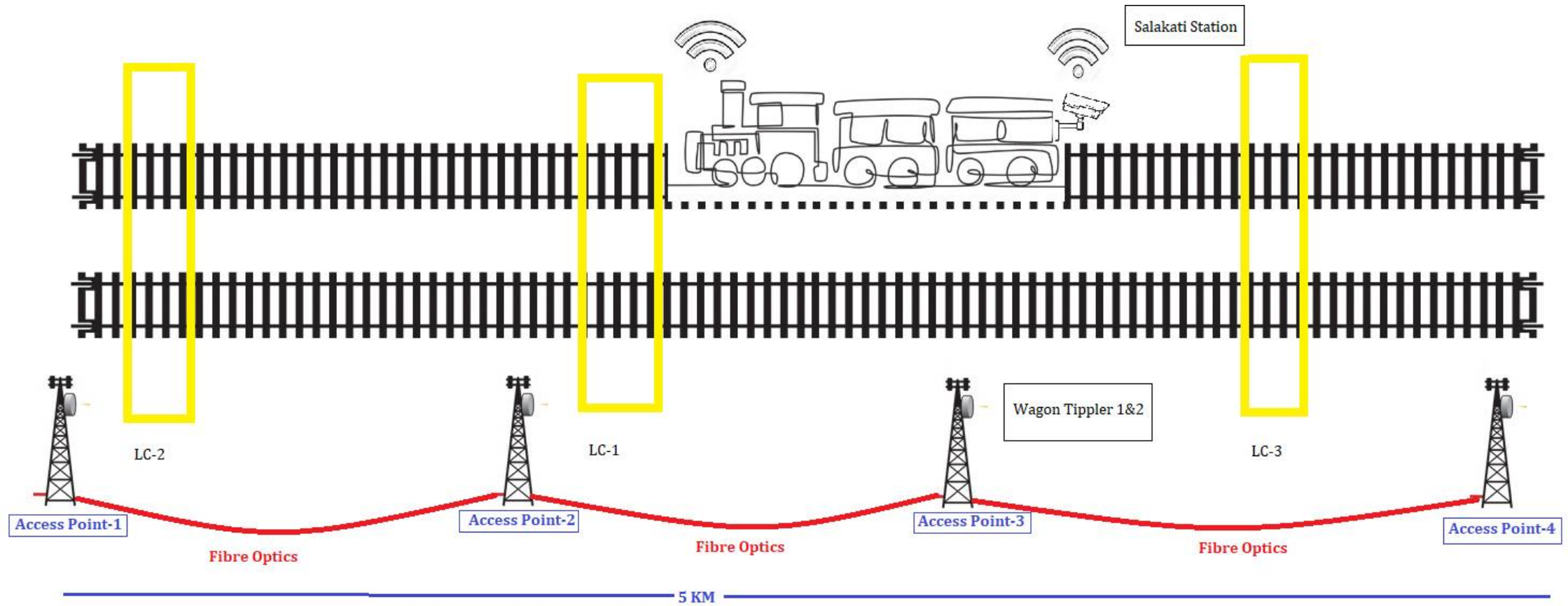
IMPLEMENTATION IN OTHER PROJECTS



1. REVERSE RAKE MOVEMENT & BACK SHUNTING IS COMMON PHENOMENON IN EVERY PROJECT & EVERY PLANT NEEDS THIS. EASILY CAN BE IMPLEMENTED. WE WILL SHARE TECHNICAL DETAILS WITH CC-FT, OS-FT GROUP.
2. IN 2020 DECEMBER, WE HAVE DEVELOPED PORTABLE BUZZER CUM FLASHER SYSTEM FOR REVERSE MOVEMENT & PRESENTLY, VERY PLANT FT IS USING IT.



ON-GOING & FUTURE IMPROVEMENT





Safety is a
small
investment for a
rich future.



Thank You



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