

Technology developments in Indian Railways.

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ABSTRACT: Re-engineer Indian railways for technology innovations and economic growth, to be a boon to the economic growth. The paper presents numerous avenues of technology innovations in Indian railways, thus reducing redundant and repetitive work and saving costs. The paper utilizes information technology and recent advancements in engineering technology to be adapted into Indian railways daily functioning.

Keywords: Indian railways, excel, composites, photochemical blanking, water jet machining

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I. INTRODUCTION:

Re-engineer the organisation, for wealth creation and sustainable economic growth, to deliver on time and on cost, what customer never dreamed, for the customer realize it as if he/she has always wanted it [1].

II. LITERATURE SURVEY:

The total route length of Indian railways is 67415 million kilometers and broad gauge route length is 62,891 million kilometers [2]. Eight wheeler Wagon utilization is 19364 million kilometers [2]. The passenger density per kilometer of route kilometer is 18.34 kilometers[2]. The number of Excel spreadsheet is used to process, calculate and display information, in countless ways [3]. Excel's powerful features enable build business models doing data analytics, for optimal solutions [4]. More than fifty thousand materials are available for design and manufacturing, ranging from ordinary materials like steel to advanced materials like composites [5]. Composites are made from combining two or more materials, different at the molecular level and mechanically separable [5]. The recycled plastic could be used as a fabric for office furniture and thus, in turn in indian railways[6]. Water jet machining utilizes a jet of water at pressure ranges of 400Mpa-1400MPa with jet nozzle diameters of 0.05 to 1mm, to cut a variety of materials like fabric, leather, plastics, wood, insulating materials etc [7]. Photo-chemical blanking, also called photo etching, removes material by photographic techniques and blanks burr-free surfaces as thin as 0.0025mm [7].

III. METHODOLOGY AND DISCUSSION:

Excel sheet. The railway reservation chart to be put into an excel sheet, to save paper. The train ticket examiner-TTE, to use a tablet to examine passenger tickets in softcopy. The TTE dynamically uploads the passenger data onto a railway server continuously.

Fluorescent red X mark. The red X mark on the last bogie of a train to be painted fluorescent. The fluorescent paint glows in the dark and thus visible in the dark at night times.

PNR to avail newspapers softcopy on irctc website. The passengers are given softcopy newspapers free of cost against the PNR number in the ticket. The newspaper could be read on the irctc website in the journey. It is a pocket friendly measure to the passenger simulatenously strengthening the finance capacity of journalism. Sleeper class passenger opt yatriniwas at the time of online reservation in IRCTC website. It is a passenger facility given only to sleeper class passengers.

Sleeper coaches opaque window composite material. The opaque window in sleeper coaches is hardly used. It adds to the weight of the train. The opaque window material could be replaced by a less weight-high strength composite material. The new composite material reduces the static weight of the windows when put together. Thus, reducing the electricity needed to pull the train and thereby reducing the carbon emissions involved in generating the electricity saved. The berth numbers in coaches could be photo-chemically blanked instead of numbers on riveted plates. The photochemical blanking process saves time and material besides technology obsolescence.

Water jet machining to cut leather for making berths and seats. It increases productivity. The cushion used in berths and seats to be made of recycled plastic. It paves a new avenue to dispose plastic waste.

Plastic bottle wastage and the recycling cost to Indian railways could be avoided by fashion technology. Let fashion shows ramp walks models hold a water bottle in hand while walking on the ramp. Passengers are expected to mimic the fashion of holding plastic water bottles in hand while leaving the railway stations.

IV. CONCLUSION:

Innovation must become a walk of everyday life. Innovation must become a lifestyle of urban middleclass living. The paper presents numerous technology innovations to be done in Indian railways. Technology Innovations reduce redundant and repetitive work, saving workdays and cost. The paper utilizes information technology and recent advancements in engineering technology to be adapted into Indian railways daily functioning. Technology innovations could unburden the Indian railways from the load of subsidy in passenger fare and simulatenously be pocket friendly to passengers, thus being a boon to Indian economy.

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