FINAL YEAR PROJECT REPORT

SOLAR POWERED WIRELESS RAIL TRACK MONITORING SYSTEM

In fulfillment of the requirement
For degree of
BEE (Electrical Engineering)

By

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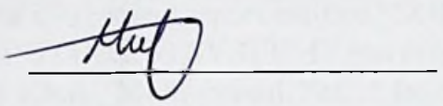
DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Signature : 

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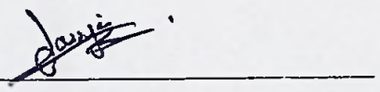
Signature : 

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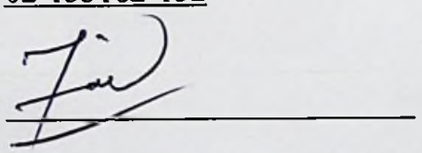
Signature : 

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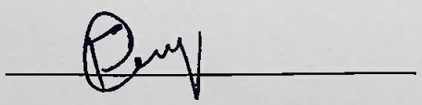
Signature : 

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Specially dedicated to

my beloved grandfather (**Abdul Quyyam Khan late**), mother (**Rifat Kaniz**) and father (**Imtiaz Ahmed**)

(**Muhammad Faisal Imtiaz**)

my beloved grandfather (**Azmatullah Khan**), mother (**Syeda Aliya Jeelani**) and father

(**Anis Ahmed Khan**) (Daniya

Anis Khan)

my beloved Aunt (**Bibi Saira Rasool Baksh Soomro**), mother (**Noor Jahan Abdulrehman**), and father (**Abdulrehman Kayamuddin**) (**Muhammad Abdulrehman Kayamuddin**)

my beloved grandfather (**Ismail Chatni**) and grandmother (**Zubaida Bai**) mother(**Shabana Parveen**)and father(**Taufiq Ismail**) (**Muhammad Furqan Chatni**)

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SOLAR-POWERED WIRELESS RAIL TRACK MONITORING SYSTEM

ABSTRACT

The recent development in railway inspection, monitoring, and tracking has advanced throughout the globe. Several countries like China and Japan have already introduced Artificial intelligence to their safety protocols in preventing railway accidents one of these is "Tunnel Fox" an autonomous vehicle for railway inspection. Talking about the Railway industry in Pakistan. Pakistan has faced 27 major accidents over the past 20 years, which were all caused by derailments. The technology available in Pakistan has just started to develop but has not reached the level existing elsewhere. We are aiming to introduce AI monitoring to the Railway inspection department. Real-time monitoring of defected tracks. We have made an Electric Cart which is powered by a solar panel which charges the battery through which DC motor runs and electric vehicle moves. It is equipped with a camera which detects track anomalies which are being processed via an AI computer. The technology can precisely and cost-effectively locate an operational train's position and other parameters. This project aims to create and set out a economical and intelligent full-fledged wireless-based Railway Track Detection System to prevent railway accidents. It can help discover fractures and reduce the likelihood of disasters. The system's efficiency can be guaranteed because it will be automated and will require little operator intervention. This system, on the other hand, has difficulty identifying an inner break in the railway track. In the long run, the concept might be utilized on a large scale to promote higher train track safety criteria and provide adequate testing infrastructure to meet the requirement.

Table of Contents