VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belagavi-560014, Karnataka

A PROJECT REPORT ON

"Electrical Vehicle Battery Life Span Prediction Using Machine Learning"

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

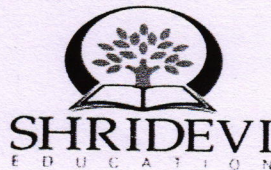## BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING

Submitted By

Shwet Kumar	[1SV19CS067]
Siddesh Yadav G S	[1SV19CS069]
Y S Yaswanth Sai	[1SV19CS083]
Zakaur Rahman	[1SV19CS086]

Under the guidance of

Mr. Girish L
Assistant Professor, Dept. of CSE.

SHRIDEVI
EDUCATION

PRINCIPAL
SIET. TUMKUR.

Department of Computer Science and Engineering

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated To Visvesvaraya Technological University)
Sira Road, Tumakuru – 572106, Karnataka.
2022-2023

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that, project report of entitled "Electrical Vehicle Battery Lifespan Prediction Using Machine Learning" has been successfully carried out by Shwet Kumar [1SV19CS067], SiddeshYadav G S [1SV19CS069], Y S Yaswanth Sai [1SV19CS083], Zakaur Rahman [1SV19CS086] in partial fulfillment for the award of **Bachelor of Engineering** in **Computer Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23**. It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The Project report has been approved as it certifies the academic requirements in respect of Project work prescribed for the Bachelor of Engineering Degree.

Signature of Guide
Mr. Girish L
Assistant Professor.
Dept. of CSE,
SIET, Tumakuru.

— 24/5/23

Signature of H.O.D
Dr. Basavesh D B.E., M.Tech., Phd,
Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Signature of Principal

Dr.Narendra Viswanath M.E., Ph.D., MIE, MISTE, MIWS., FIV.,
Principal,
SIET, Tumakuru

External Viva

PRINCIPAL
SIET. TUMKUR.

Name of the Examiners

1 Dr. Basawesha D

2 Wasim Uddin

Signature with date

26/5/23

26/5/23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We, **Shwet Kumar [1SV19CS067]**, **SiddeshYadav G S [1SV19CS069]**, **Y S Yaswanth Sai [1SV19CS083]**, **Zakaur Rahman [1SV19CS086]**, students of VIII semester **B.E** in Computer Science& Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the Project work-II entitled **"Electrical Vehicle Battery Lifespan Prediction Using Machine Learning"**, embodies the report of our Project work carried out under the guidance of **Mr.Girish L, Assistant Professor, Department of CSE, SIET, Tumakuru** as partial fulfillment of requirements for the award of the degree in **Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi**, during the academic year **2022-23**. The Project has been approved as it satisfies the academic requirements in respect to the Project work.

Place: Tumakuru

Date: 26|05|23

Student Name & Signature

Shwet Kumar   [1SV19CS067] _(signature)_

SiddeshYadav G S [1SV19CS069] _(signature)_

Y S Yaswanth Sai [1SV19CS083] _(signature)_

Zakaur Rahman   [1SV19CS086] _(signature)_

(signature)

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ACKNOWLEDGEMENT

This Project will be incomplete without thanking the personalities responsible for this venture, which otherwise would not have become a reality.

We express our profound gratitude to **Dr. Narendra Viswanath,** Principal, S.I.E.T, for his moral support towards completing our Project work.

We would like to thank Head of Department **Dr. Basavesha D** Head, Department of CSE, SIET for providing all the support and facility.

We would like to thank my guide **Mr. Girish L, Assistant Professor,** Department of computer Science and Engineering, SIET for his help, sharing his technical expertise and timely advice.

We whole heartedly thank, **Mr. Suthan R,** Assistant Professor, Project coordinator, Department of Computer Science and Engineering, for the support.

We would like to express our sincere gratitude to all teaching and non-teaching faculty of the department of CSE for guiding us of this project by giving valuable suggestion and encouragement.

By,

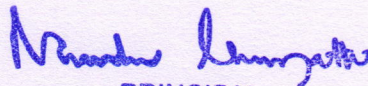|	
Shwet Kumar	**[1SV19CS067]**
SiddeshYadav G S	**[1SV19CS069]**
Y S Yaswanth Sai	**[1SV19CS083]**
Zakaur Rahman	**[1SV19CS086]**

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Date: 23/05/2023

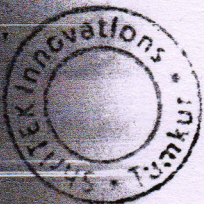## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. SHWET KUMAR** bearing USN **1SV19CS067** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled "Electrical Vehicle Battery Life Span Prediction Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

PRINCIPAL
SIET. TUMKUR.

Authorized Signature

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. SIDDESHYADAV G S** bearing USN **1SV19CS069** Student of **Shridevi Institute of Engineering and Technology** has successfully completed his Project Work titled "Electrical Vehicle Battery Life Span Prediction Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

Authorized Signature

PRINCIPAL
SIET. TUMKUR.

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. Y S YASWANTH SAI** bearing USN **1SV19CS083** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled "Electrical Vehicle Battery Life Span Prediction Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

Authorized Signature

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ShriTEK Innovations

○ Skill & Career Development Centre, Room No. 3, Ground Floor, SIET Campus, Sira Road, Tumakuru - 572 106. Karnataka.

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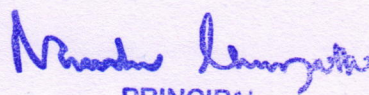✉ : shritekinnovations@gmail.com
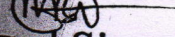
Date: 23/05/2023

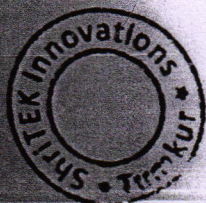## TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. ZAKAUR RAHMAN** bearing USN **1SV19CS086** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled "Electrical Vehicle Battery Life Span Prediction Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

Authorized Signature

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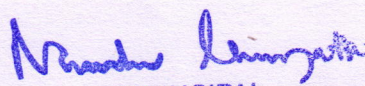
ABSTRACT

Electric vehicles (EVs) are becoming increasingly popular due to their low environmental impact and fuel efficiency. However, the performance of an EV's battery is critical to its overall effectiveness. Battery degradation can significantly reduce an EV's range and acceleration over time. Hence, accurate battery life prediction is essential to ensure the long-term performance of EVs. In this project, we propose a battery life prediction model for EVs based on machine learning algorithms. We will use data collected from EVs to train the model to accurately predict battery degradation over time. The model will consider various factors such as temperature, charging patterns, and driving behaviours that affect battery life. Our ultimate goal is to develop a reliable battery life prediction model that can be used by EV manufacturers and users to estimate the remaining battery life and optimize battery usage to extend its lifespan. Electric vehicles (EVs) require reliable battery performance to operate optimally. However, battery degradation over time can significantly reduce an EV's range and acceleration. Therefore, accurate battery life prediction is essential to ensure the long-term performance of EVs. In this project, we propose a battery life prediction model for EVs based on machine learning algorithms. We will collect data on various factors that affect battery life, such as temperature, charging patterns, and driving behaviours, and use supervised learning algorithms to train the model. The model's accuracy will be evaluated using metrics such as mean absolute error and root mean squared error. The ultimate goal is to develop a reliable battery life prediction model that can be used by EV manufacturers and users to estimate the remaining battery life and optimize battery usage to extend its lifespan.

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