

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



A PROJECT REPORT ON

"Real Time Sentiment Analysis 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

Siddalingaiah N M (1SV19CS068)
Suchitra H C (1SV19CS074)
Supriya C S (1SV19CS077)
Varsha N (1SV19CS081)

Under the guidance of

Dr. Manjula T B.E., M.Tech.,Phd

Associate Professor, Dept. of CSE.

Manjula T
PRINCIPAL
SIET, TUMKUR.



Department of Computer Science and Engineering

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Affiliated To Visvesvaraya Technological University)

Sira Road, Tumakuru – 572 106, Karnataka.

2022-23



Sri Shridevi Charitable Trust (R.)

SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY

(Recognised by Govt. of Karnataka, Affiliated to VTU, Belagavi and Approved by AICTE, New Delhi)

Sira Road, Tumakuru - 572 106, Karnataka.



An ISO 9001:2015 Certified Institution

Phone 0816-2212629 | Fax. 0816-2212628 | Email: info@shrideviengineering.org | Web: http://www.shrideviengineering.org

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING CERTIFICATE

This is to certify that, the project entitled “Real Time Sentiment Analysis Using Machine Learning” has been successfully carried out by Siddalingaiah N M [1SV19CS068], Suchitra H C [1SV19CS074], Supriya C S [1SV19CS077], Varsha N [1SV19CS081], 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 satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

Manjula T 25/5/23

Signature of Guide

Dr. Manjula T B.E., M.Tech, Phd

Associate Professor,
Dept. of CSE,
SIET, Tumakuru.

Manjula T

Signature of H.O.D

Dr. Basavesha D B.E., M.Tech, Phd

Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Basavesha D 25/5/23

Signature of Principal

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

Principal,
SIET, Tumakuru.

Narendra Viswanath
PRINCIPAL
SIET, TUMKUR.

External Viva

Name of the Examiners

Signature with Date

1. Dr. Basavesha D

2. Wasim Uddin

Basavesha D 25/5/23

Wasim Uddin 26/5/23



Sri Shridevi Charitable Trust (R.)
SHRIDEVI INSTITUTE OF ENGINEERING & TECHNOLOGY

(Recognised by Govt. of Karnataka, Affiliated to VTU, Belagavi and Approved by AICTE, New Delhi)

Sira Road, Tumakuru - 572 106, Karnataka.

Phone: 0816-2212629 | Fax: 0816-2212628 | Email: info@shrideviengineering.org | Web: http://www.shrideviengineering.org



**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

DECLARATION

We, Siddalingaiah N M [1SV19CS068], Suchitra H C [1SV19CS074], Supriya C S [1SV19CS077], Varsha N [1SV19CS081], student of VIII semester B.E in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the project work-II entitled “**Real Time Sentiment Analysis Using Machine Learning**”, embodies the report of our project work carried out by our team under the guidance of **Dr. Manjula T, Associate 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: 26/05/2023

Student Name & Signature

Siddalingaiah N M [1SV19CS068]	
Suchitra H C [1SV19CS074]	
Supriya C S [1SV19CS077]	
Varsha N [1SV19CS081]	

PRINCIPAL
SIET, TUMKUR.

ShriTEK Innovations

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

☎ : 0816-2211642
🌐 : www.shritek.com
✉ : shritekinnovations@gmail.com

Date: 23/05/2023

TO WHOM SO EVER IT MAY CONCERN


This is to certify that **Mr. SIDDALINGAIAH N M** bearing USN **1SV19CS068** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled "Real Time Sentiment Analysis Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations


Authorized Signature




PRINCIPAL
SIET, TUMKUR

ShriTEK Innovations

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

K
NS

● : 0816-2211642
● : www.shritek.com
● : shritekinnovations@gmail.com

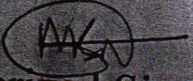
Date: 23/05/2023

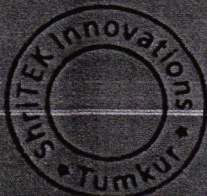
TO WHOM SO EVER IT MAY CONCERN

This is to certify that Ms. SUCHITRA H C bearing USN SV19CS074 Student of Shridevi Institute of Engineering & Technology has successfully completed her Project Work titled "Real Time Sentiment Analysis Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations


Authorized Signature




PRINCIPAL
SIET. TUMKUR

ShriTEK Innovations

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

☎ : 0816-2211642
🌐 : www.shritek.com
✉ : shritekinnovations@gmail.com

Date: 23/05/2023

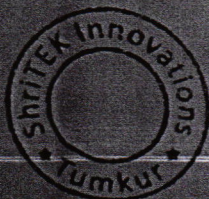
TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. SUPRIYA C S** bearing USN **SV19CS077** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled **Real Time Sentiment Analysis Using Machine Learning**”.

We wish every success in her career.

For ShriTEK Innovations

Authorized Signature



Principal
PRINCIPAL
SIET. TUMKUR.

ShriTEK Innovations

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

☎ : 0816-2211642
🌐 : www.shritek.com
✉ : shritekinnovations@gmail.com


Date: 23/05/2023

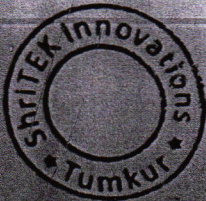
TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. VARSHA N** bearing USN
SV19CS081 Student of **Shridevi Institute of Engineering
and Technology** has successfully completed her Project Work
titled "**Real Time Sentiment Analysis Using Machine Learning**".

We wish every success in her career.

For ShriTEK Innovations


Authorized Signature




PRINCIPAL
SIET. TUMKUR.

ACKNOWLEDGEMENT

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

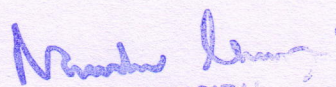
We express our profound gratitude to **Dr. Narendra Viswanath**, Principal, S.I.E.T, for his moral support towards completing our project work.

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 **Dr. Manjula T**, Associate Professor, Department of computer Science and Engineering, SIET for her help, sharing her technical expertise and timely advice.

We whole heartedly thank, **Mr. Girish L**, 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 throughout the course of this project by giving valuable suggestion and encouragement.


PRINCIPAL
SIET. TUMKUR
By,

Siddalingaiah N M [1SV19CS068]

Suchitra H C [1SV19CS074]

Supriya C S [1SV19CS077]

Varsha N [1SV19CS081]

Abstract

Research on machine assisted text analysis follows the rapid development of digital media, and sentiment analysis is among the prevalent applications. Traditional sentiment analysis methods require complex feature engineering, and embedding representations have dominated leader boards for a long time. However, the context-independent nature limits their representative power in rich context, hurting performance in Natural Language Processing (NLP) tasks. Bidirectional Encoder Representations from Transformers (BERT), among other re-trained language models, beats existing best results in eleven NLP tasks (including sentence-level sentiment classification) by a large margin, which makes it the new baseline of text representation. As a more challenging task, fewer applications of BERT have been observed for sentiment classification at the aspect level. We implement three target-dependent variations of the BERT base model, with positioned output at the target terms and an optional sentence with the target built in. Experiments on three data collections show that our BERT model achieves new state-of-the-art performance, in comparison to traditional feature engineering methods, embedding-based models and earlier applications of BERT. With the successful application of BERT in many NLP tasks, our experiments try to verify if its context-aware representation can achieve similar performance improvement in aspect-based sentiment analysis. Surprisingly, coupling it with complex neural networks that used to work well with embedding representations does not show much value. On the other hand, incorporation of target information shows stable accuracy improvement, and the most effective way of utilizing that information is displayed through the experiment.

Results

Conclusion

References

N. Srinivasan
PRINCIPAL
S.E.T. TUMKUR.