



**UNIVERSITY COLLEGE OF ENGINEERING (BIT CAMPUS)
ANNA UNIVERSITY, TIRUCHIRAPPALLI**

IT3811 – Project Work

CYBERBULLYING DETECTION AND PREVENTION

**PROJECT MENTOR
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Problem Statement

“Detecting cyberbullying in real-time is challenging due to the large volume of online interactions”.

Existing systems often lack accuracy, scalability, and contextual understanding across different platforms and languages. Bias in detection can lead to unfair moderation, disproportionately affecting certain groups. Additionally, monitoring private messaging platforms is difficult due to privacy concerns and limited data availability.



PixelExpert Technology & Services Pvt Ltd

Pixel Expert is an Automotive Embedded Software
Solution and Service provider based in Chennai, India.

Company Overview

Vision:

- ☐ Engage Automotive consumers with an innovative and best-in-class user experience.
- ☐ Enhance user interaction with cutting-edge technology.
- ☐ Prioritize innovation and seamless integration.
- ☐ Ensure high-quality and efficient automotive solutions.
- ☐ Create future-ready automotive software experiences.

Mission:

- ☐ To have our footprint in all the next-generation Driver Information Systems by providing futuristic and cutting-edge software solutions.
- ☐ Develop advanced solutions for Driver Information Systems.
- ☐ Lead in delivering top-tier software and services.
- ☐ Innovate and adapt to emerging automotive technologies.
- ☐ Establish a strong presence in next-gen automotive software.

About Us:

- ☐ Specializes in Automotive Tier-1 Supplier software solutions.
- ☐ Expertise in automotive HMI/Driver Information Systems.
- ☐ Provides on-site, remote, and offshore operations support.
- ☐ Delivers exceptional and tailored software skills.

Objectives

- ❑ To Develop an **advanced cyberbullying detection system** for a safer online space.
- ❑ To Continuously **update and enhance** to counter new cyberbullying tactics.
- ❑ Use **machine learning and deep learning** to detect harmful content in text, images, and multimedia.
- ❑ To Ensure **high accuracy** while reducing false positives and negatives.
- ❑ To Enable **real-time detection** for immediate intervention and moderation.
- ❑ To Optimize for **scalability** to handle large amounts of data across platforms

Proposed Methodology

- ❑ **Two-level offence classification** system for cybercrime incidents.
- ❑ Can be **extended with recommended actions, measures, and policies**.
- ❑ Uses **RNN-based machine learning** for similarity analysis and accuracy improvement.
- ❑ **Continuously refined and updated** for high-precision classification.
- ❑ Ensures a **robust and adaptive cybersecurity framework**.

Literature Survey

S.No	Year& Journal Publicati on	Author	Title	Merits	Demerits
1	2024, IEEE	Rohan Gupta, Prachi Mittal, Radhika, Utkarsh, Ankit Kumar Singh	AI based Cyberbullying Detection and Prevention	This demonstrates the model's effectiveness in handling complex patterns and making reliable classifications..	AI-based detection techniques may reinforce existing biases, leading to incorrect categorization and unfair treatment.
2.	2024, IEEE	J. Sathya, F. Mary Harim Fernandez	Enhancing Cyberbullying Detection in Social Media: Leveraging Ontology with Skip- gram Optimization	This allows the model to differentiate between harmless and harmful content, reducing false positives and improving detection accuracy	While the model performs well in controlled experiments, real-world cyberbullying detection remains challenging due to linguistic variations, slang, and evolving online behavior.

S.No	Year& Journal Publication	Author	Title	Merits	Demerits
3	2024, IEEE	M. Saravanan Karthikeyan,D. Abiatha Kumari, S. Murali, K. Paul Joshua, R. Santhana Krishnan, J. Relin Francis Raj	Automated Detection of Cyberbullying through Multi- Model Learning	The proposed system improving accuracy and contextual understanding of cyberbullying compared to traditional text-only models.	Manual moderation and simple keyword filtering are ineffective in detecting cyberbullying due to contextual misunderstandings and the massive volume of online content.
4	2024, IEEE	Asfia Sabahath, Arshiya Begum, Pundru Chandra Shaker Reddy, Marepalli Radha, Jay Pawar, Mithra C	A Hybrid Framework for Image Cyberbullying Recognition Using Transfer Deep Learning	The study utilizes pre- trained models for feature extraction, allowing for better recognition of cyberbullying patterns in images without requiring extensive training from scratch.	The study acknowledges that insufficient labeled training data limits the model's ability to unseen cyberbullying images, and the need for a larger dataset for better accuracy.

Scope of the Project

This project aims to develop an advanced cyberbullying detection system using machine learning and deep learning techniques.

The scope includes:

- ❑ **Real-Time Detection:** Identifying cyberbullying in text, images, and multimedia across various online platforms.
- ❑ **Accuracy & Fairness:** Enhancing detection accuracy while minimizing bias to ensure fair moderation.
- ❑ **Privacy-Aware Monitoring:** Addressing challenges in detecting cyberbullying within private messaging while maintaining user privacy.
- ❑ **Scalability & Adaptability:** Designing a system capable of handling large volumes of data and adapting to evolving cyberbullying tactics.

Hardware Requirements

- ☐ RAM - 4 GB (min)
- ☐ Hard Disk - 20 GB

Software Requirements

- ☐ Operating System - Windows 10,11
- ☐ Front End : HTML,CSS and JS
- ☐ Backend : Python

Datasets Source

<https://www.kaggle.com/datasets/andrewmvd/cyberbullying-classification>

<https://www.kaggle.com/datasets/saurabhshahane/cyberbullying-dataset>

Base Paper details

Enhancing Online Safety: Cyberbullying Detection with Random Forest Classification

[M Purnachandra Rao](#); [Nikitha Kota](#); [Devamsakhi Nidumukkala](#); [Meghana Madoori](#); [Danish Ali](#)

THANK YOU