

Social Media Parsing Tool for Digital Forensics: An Automated Approach to Evidence Collection and Documentation

by

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Maulana Abul Kalam Azad University of Technology, West Bengal

(Formerly known as West Bengal University of Technology)

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A Dissertation Submitted in partial fulfillment for the Degree of Bachelor of Technology (B.Tech), 5th Semester in CSE (Artificial Intelligence & Machine Learning)

by

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CERTIFICATE OF ORIGINALITY

The Project entitled “Social Media Parsing Tool for Digital Forensics: An Automated Approach to Evidence Collection and Documentation” has been carried out by ourselves in partial fulfillment of the degree of Bachelor of Technology in CSE (Artificial Intelligence & Machine Learning) of Narula Institute of Technology, Agarpara, Kolkata under Maulana Abul Kalam Azad University of Technology during the academic year 2025-2026.

While developing this project, no unfair means of illegal copies of software etc. have been used and neither any part of this project nor any documentation have been submitted elsewhere or copied as far in our knowledge.

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CERTIFICATE OF APPROVAL

This is to certify that the project entitled "**Social Media Parsing Tool for Digital Forensics: An Automated Approach to Evidence Collection and Documentation**" has been carried out by **Prince Raj, Ankit Das, Ayush Yadav, Isha Saha** under my supervision in partial fulfillment of the requirements for the degree of Bachelor of Technology (B.Tech.) in **CSE (Artificial Intelligence and Machine Learning)** of Narula Institute of Technology, Agarpara, affiliated to Maulana Abul Kalam Azad University of Technology, during the academic year 2025–2026.

It is understood that by this approval, the undersigned does not necessarily endorse any of the statements made or opinions expressed herein, but approves the project only for the purpose for which it is submitted.

1.

Abstract

Social media platforms have become vital repositories of digital evidence, yet law enforcement agencies face significant challenges in the manual collection, analysis, and preservation of this volatile data. This paper presents an automated Social Media Parsing Tool designed to streamline the extraction and documentation of digital evidence from platforms such as Facebook and Instagram. Developed as a Windows application using an Electron.js frontend and a Node.js backend, the system utilizes Selenium-WebDriver to mimic human browsing behavior, enabling the automated capture of posts, messages, timelines, and account information. To ensure data integrity and security, that is critical for legal admissibility, the tool leverages Google Firestore for encrypted storage and uses PDFKit to generate comprehensive, forensic-ready reports. By automating the data collection process, the tool minimizes human error, reduces investigation time, and maintains a strict chain of custody. Future enhancements include the integration of AI-based analysis and expansion to Android and web-based platforms to further support the evolving needs of digital forensics.

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Chapter 1

Introduction

1.1 Background

For reference see figure 1.1, equation ??, and table 1.1.



Figure 1.1: Sample image

xx	yy
aaa	aaa aaa aaa
bbb	bbb bbb bbb

Table 1.1: Sample table

1.1.1 Sub-section 1

Some text ...

1.1.2 Sub-section 2

Some text ...

Chapter 2

Problem Definition and Objective

2.1 Problem Definition

Some text ...

2.2 Objective

Some text ...

Chapter 3

Scope of Project

3.1 Highlight Specific Aspects the Project Will Cover

Some Text...

3.2 Boundaries and Focus of the Project

Some Text...

Chapter 4

Methodology

4.1 Data Collection

Some text ...

4.2 Design

Some text ...

4.3 Development

Some text ...

4.4 Testing and Validation

Some text ...

Chapter 5

Tools and Technologies

5.1 Software Requirements

Specify the software, hardware, and frameworks to be used. Example: Python, TensorFlow, MATLAB, Arduino, etc.

5.2 Hardware Requirements

Some Text...

Chapter 6

Expected Outcome

Clearly state the deliverables of the project bullet wise.

Example: “A functional mobile app for disease prediction with 90% accuracy.”

Chapter 7

Timeline (Optional)

You may add timeline / gnatt chart

Chapter 8

Conclusions

Some text ...