TechSaksham | SAP | edunet foundation | Microsoft

IMAGE FORGERY DETECTOR

Our Team

ABHISHEK KHOND
DEVASHISH JAYBHAYE
PIYUSH SINGH
SAIF KHAN PATHAN

Our Respected Mentor

Jitendra Rathod

edunet foundation

OUTLINE

- Abstract
- Problem Statement
- Aims, Objective & Proposed System/Solution
- System Design/Architecture
- System Development Approach (Technology Used)
- Algorithm & Deployment
- Video of the Project
- Conclusion
- Future Scope
- References

edunet foundation

Abstract

- Nowadays, digital media is at its peak so authenticity of digital images is a critical concern in today's era of digital manipulation.
- It is easy to forge fake yet believable images with few clicks of a button.
- The Image forgery, which includes techniques like splicing, copy-move, and retouching , presents substantial challenges in preserving the integrity of visual content.
- Therefore, it is necessary to ascertain the authenticity of image in domains like journalism and forensics.
- The goal is to develop a system capable of accurately identifying various forms of image manipulation to ensure the authenticity and reliability of visual media.

edunet foundation

Problem Statement

- Digital media is at its peak.
- It is easy to forge fake yet believable images with few clicks of a button.
- Therefore, it is necessary to ascertain the authenticity of image in domains like journalism and forensics.

edunet foundation

Aim and Objective

The project aims to develop a system capable of detecting Image forgery as well as different forms of image forgery using deep learning techniques and Error Level Analysis (ELA).

The objectives include:

- ❑ Pre-processing image data to convert them into ELA format.
- ❑ Training a deep learning model to recognize tampered images.
- ❑ Implementing optimization techniques to enhance model performance.

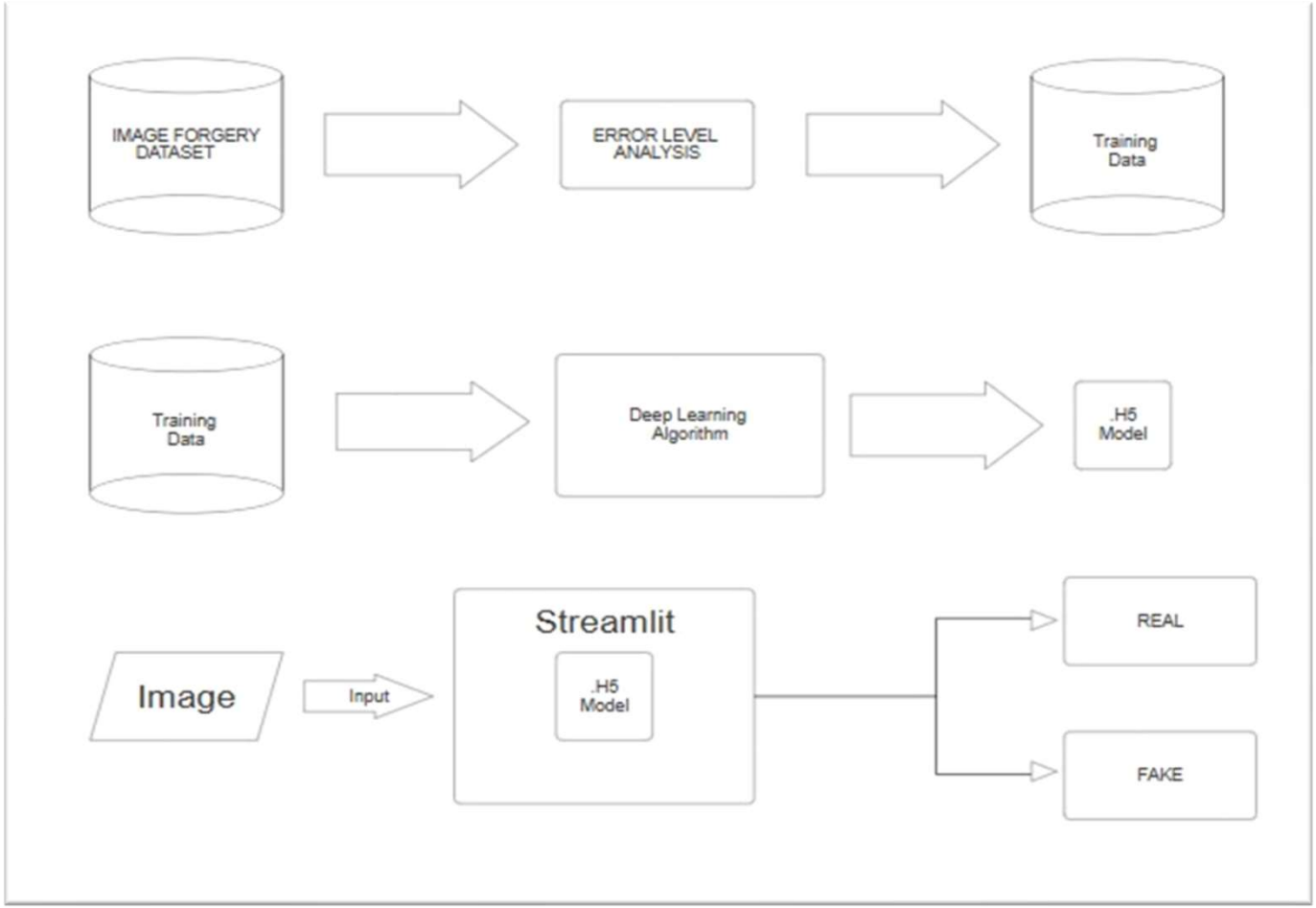
edunet foundation

Proposed Solution

- Develop a deep learning-based image forgery detection system.
- Utilize Error Level Analysis (ELA) to highlight potential tampering areas of image.
- Train the model to recognize various forms of manipulation, including splicing and retouching.
- Implement optimization techniques to enhance detection accuracy.
- Deploy the system to ensure real-time forgery detection in digital media.

edunet foundation

System Architecture



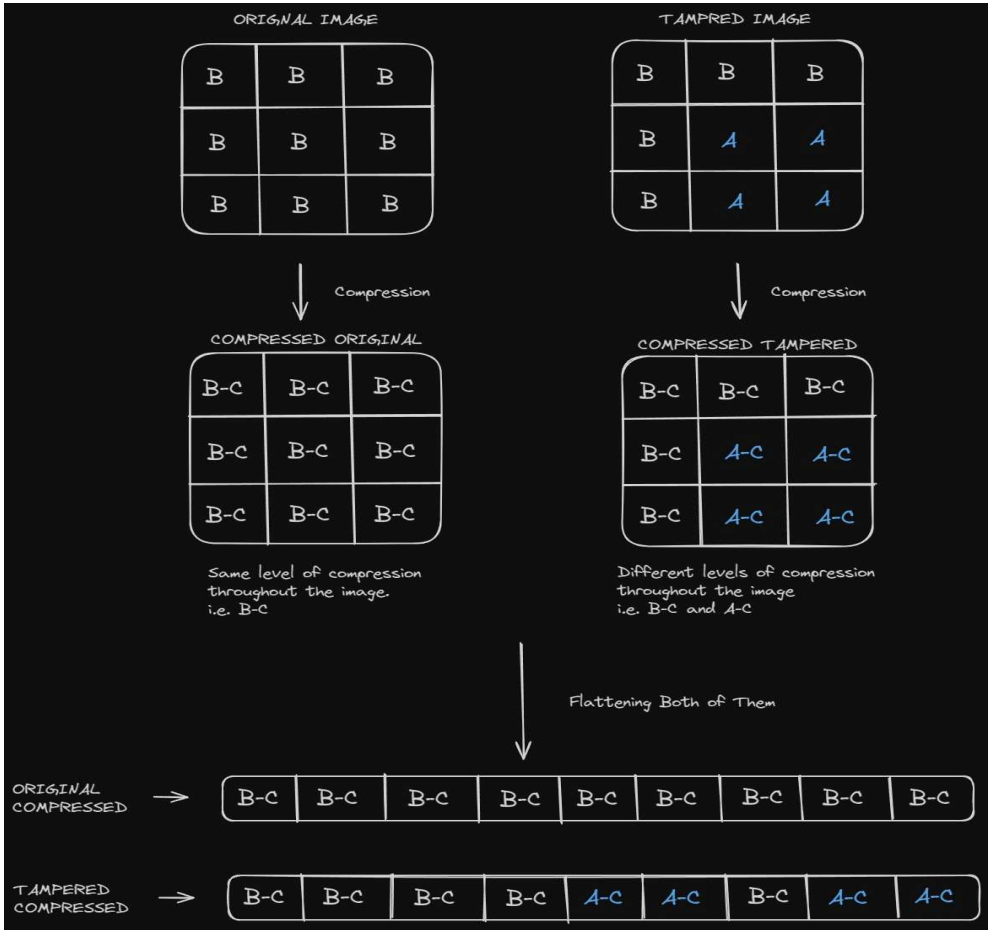
edunet foundation

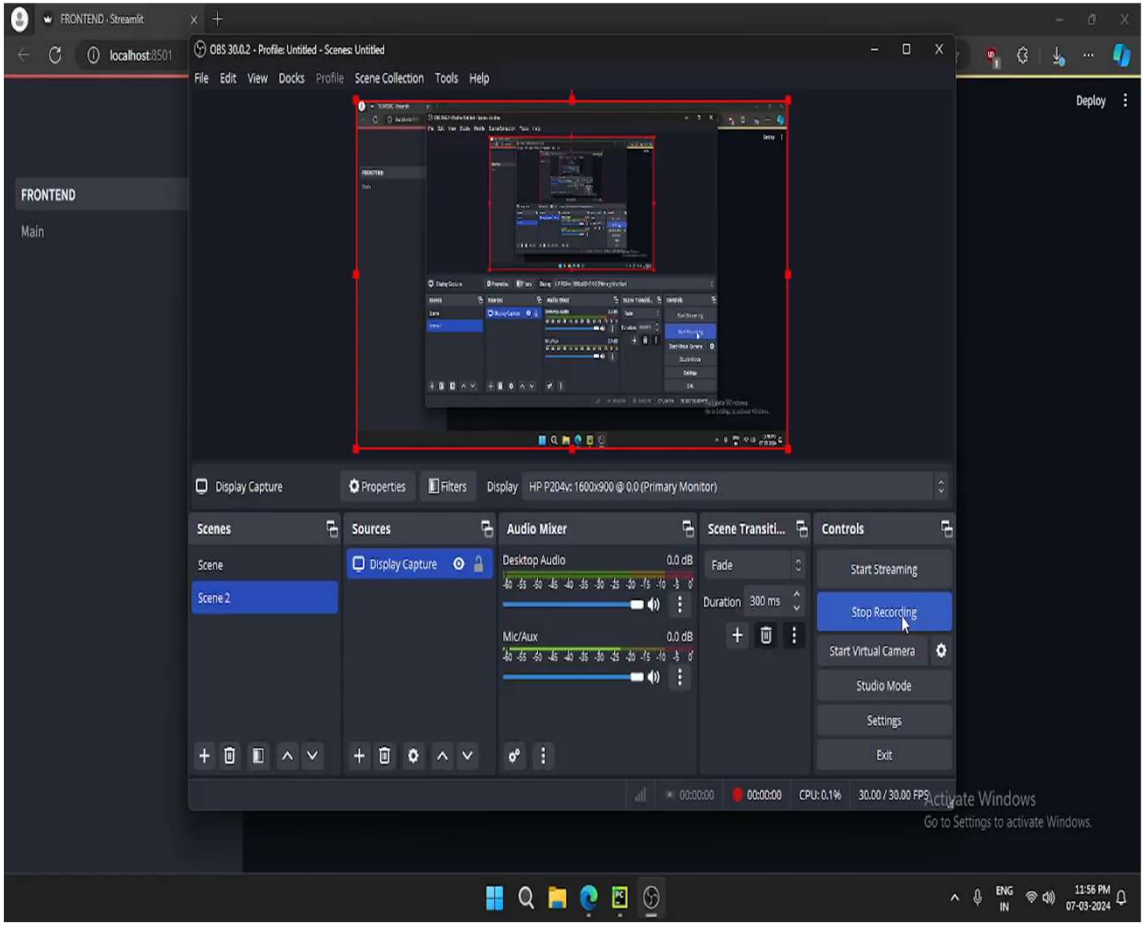
System Deployment Approach

- Used Streamlit for front end.
- Planned to deploy on Microsoft Azure.
- There are different ways to deploy a Streamlit app on Azure.
- One common approach is to use the az webapp up command through the Azure CLI.

edunet foundation

Algorithm & Deployment





edunet foundation

Conclusion

- In conclusion, our project addresses the pressing concern of image forgery in the digital age, where authenticity is paramount.
- Through the integration of Error Level Analysis (ELA) with advanced deep learning techniques, we have developed a robust image forgery detection system.
- Our system is capable of accurately identifying various forms of image manipulation, including splicing, copy-move, and retouching, thereby ensuring the integrity and reliability of visual content.
- By effectively detecting tampered images, we contribute to bolstering trust and confidence in visual media across diverse domains, including journalism, forensics, and digital forensics.

edunet foundation

Future Scope

Future enhancements to the project may include:

- ❑ We plan to extend the model to detect more sophisticated forms of image manipulation.
- ❑ These classification models will provide localization as a feature.
- ❑ Localization will help highlight the part of image that is potentially tampered
- ❑ Incorporating additional features or data sources for improved accuracy.
- ❑ Exploring real-time forgery detection applications.

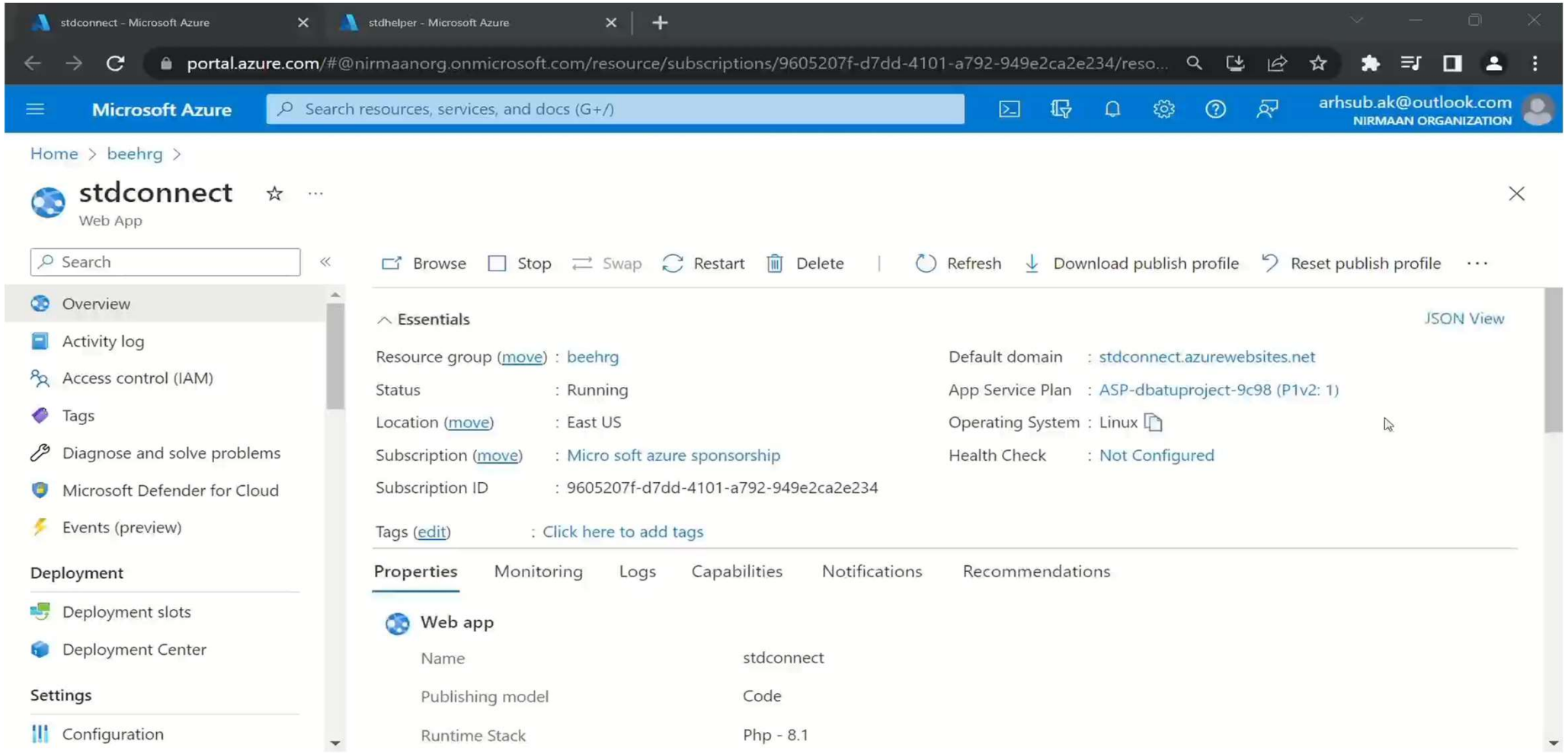
edunet foundation

Reference

- https://www.diva-portal.org/smash/get/diva2:1643711/FULLTEXT01.pdf
- https://link.springer.com/article/10.1007/s11042-022-13808-w
- https://ieeexplore.ieee.org/document/10151341
- https://www.fakeimagedetector.com/blog/shedding-light-ela-comprehensive-guide-error-level-analysis/
- https://towardsdatascience.com/image-forgery-detection-2ee6f1a65442

Project Title

edunet foundation



edunet foundation

Thank you!