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## **Stego Sniffer: detecting hidden messages in images using AI**

### **Problem Statement:**

People can secretly hide messages inside images using a method called steganography. This can be used for illegal or unsafe activities without anyone noticing. It's challenging to discern such hidden messages simply by examining the image.

The goal of this project is to develop a smart system called Stego Sniffer, which utilizes Artificial Intelligence (AI) to detect hidden messages in images. This tool will help in finding suspicious images and improving digital safety.

### **Objectives:**

#### **1. Learn how messages are hidden in images**

Understand how people secretly hide messages inside pictures using techniques like steganography.

#### **2. Collect images for testing**

Gather two types of images – some with hidden messages and some without – to train and test the system.

#### **3. Tell if an image is safe or suspicious**

Teach the system to check any image and say whether it's "clean" (safe) or "suspicious" (might have a secret message)

### **Proposed Methodology/Approach:**

In this project, we will collect images with and without hidden messages. These images will be used to train an AI model to learn the difference between normal and stego images. We will use a machine learning or deep learning method to build the model. After training, the model will be tested to see how well it can detect hidden messages. Finally, we may create a simple tool where users can upload an image and check if it has any hidden content.

## **Expected Outcome:**

The expected output of this project is an AI-based system that can successfully detect whether an image contains a hidden message or not. When a user uploads or inputs an image, the system will analyze it and display one of the following results:

- **“Clean Image”** – if there is no hidden message detected
- **“Suspicious Image”** – if a hidden message might be present

## **Reference:**

[https://www.researchgate.net/profile/Sadi-Badi/publication/391190542\\_Fuzzy\\_Clustering\\_and\\_Deep\\_Learning\\_Techniques\\_in\\_Image-Based\\_Data\\_Hiding\\_Systems/links/680cbd5ebd3f1930dd64542e/Fuzzy-Clustering-and-Deep-Learning-Techniques-in-Image-Based-Data-Hiding-Systems.pdf](https://www.researchgate.net/profile/Sadi-Badi/publication/391190542_Fuzzy_Clustering_and_Deep_Learning_Techniques_in_Image-Based_Data_Hiding_Systems/links/680cbd5ebd3f1930dd64542e/Fuzzy-Clustering-and-Deep-Learning-Techniques-in-Image-Based-Data-Hiding-Systems.pdf)