

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

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A PROJECT REPORT ON

**“A NOVEL APPROACH TO TACKLE MOVIE PIRACY ENIGMA EMPLOYING
AUTOMATED INFRARED TRANSMITTER SCREEN SYSTEM AND MODULO
OPERATOR PLANTED STEGANOANALYSIS TECHNIQUES”**

A dissertation work submitted in partial fulfillment of the requirement for the award of the degree of

**BACHELOR OF ENGINEERING
IN
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INTRODUCTION: The Internet can provide fast access to any kind of information and media, and copyrighted content. “Piracy refers to the unauthorized duplication of copyrighted content that is then sold at substantially lower prices in the 'grey' market”. Final copy of the movie content might get leaked before its release by the multiple teams working on them. The more common method is to film the movie inside a theatre and then upload it on Websites or convert them to DVDs and sell them on the streets. Most box office releases are available online within a few days or even hours of the box office release. Hindering piracy has always been priority number one for movie theaters. The markets around the world have tried to take on the issue of piracy through policing and prosecution. Copyright law protects the value of creative work. Making unauthorized copies may subject one to civil and criminal liability. Night vision goggles are provided to movie hall staff which would help them to notice any audience trying to record a movie while screening. Instead of treating every movie as a potential pirate, an anti-piracy screening system can be implemented in order to make the pirate copy useless as well as having no effect on the audience. The movie business has constantly sought to portray online piracy as a severe danger, and it was one of the main groups that lobbied for the new DRM regulations in India.

OBJECTIVES: Integrating the IR system with the projector helps to achieve these objectives:

- Designing Infrared based Transmitter Screen to avoid mobile recording
- Steganography Technique to hide secret key to avoid piracy.
- GSM(Global System for Mobile communication) based immediate alert to concerned authority to alert about Piracy Position using GPS.

IR lights will be coordinated to the focal point which will distort the picture by over exposure. The coordinated infrared light causes solid diminishment in the nature of the picture. It doesn't meddle with the camera's activity and it is innocuous to the camera client. The proposed work has applications, for example, forestalling robbery at movie theatres. This work will serve gainful at spots, for example, galleries, enterprises, authentic landmarks, displays, evolving rooms, shopping centers, gems stores, where keeping up mystery is a huge issue.

METHODOLOGY:

In this section, we proposed an algorithm which consists of random selection of frames, LSB method, In the embedding process of this algorithm involves selecting frames randomly from the cover video in which the data is to be hidden. Here we used a random function which generates random numbers within a given range. We also used a seed-value which is also the key for retrieving the data, given by the user. By using this seed value selected frames can be selected and those frames are unique for that particular seed value. As previously, we also know video steganography can be done by audio or image steganography method, here we choose image steganography logic to implement video steganography. Here we take the video-path and the hiding image path as the input and also the key of the hidden technique method must be inputted. The information, needs to be hidden is taken for processing. This process includes image bit slicing and

division of that image into 8 different bit-planes. The pixel values of each image are converted to its corresponding 8-bit binary values. Every i th bit is taken from each byte of pixel values to form the i th bit-plane image.

1.Embedding

Pre-processing: The target string length should be multiple of four otherwise some less used special character is concatenated at the end to make string length as multiple of four.

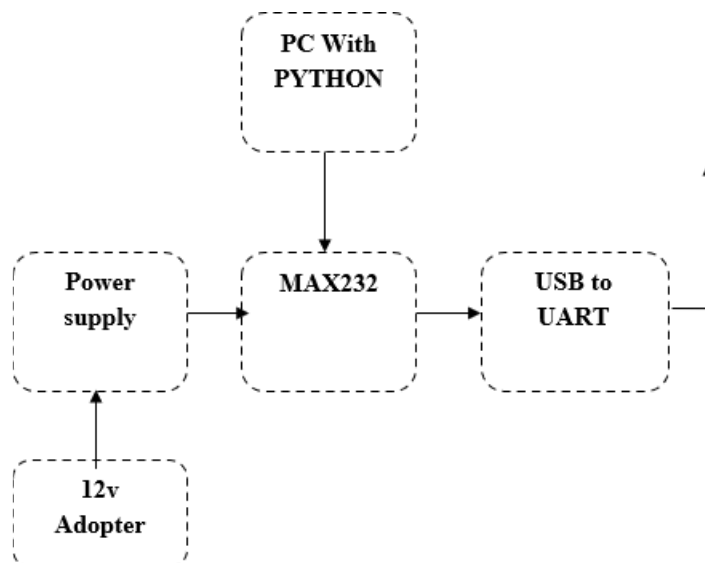
Embedding using modulo operator: Now these hexadecimal digits are embedded into the cover video by adjusting amplitude values of the target samples.

2.Extraction

Extraction using modulo operator: At the receiver side the affected (where the data is hidden) amplitude values are divided by 16 and the remainders of this division are hidden hexadecimal digits.

Post-processing: Now the resultant hexadecimal digits are converted to their 4 bit binary equivalent.

➤ **GPS Receiver Global Positioning System.** It is possible to precisely identify locations on earth by measuring distance from the satellites. This system uses MT 3318 GPS Receiver which contains high gain active patch antenna. The GPS receiver interfaced with microcontroller through the UART1 serial communication.



RESULTS AND CONCLUSION: IR transmitters used in the system are placed in and around the perimeter of the movie screen. The wavelengths of infrared are longer wavelengths than those visible to humans. This range of light is invisible to human eyes. It is very visible to many types of cameras. Hence these lights would not disturb people watching the movie. It will however distort the recordings made by many types of cameras. Hence the captured content gets blurred or disturbance is introduced in it. Video steganography performs data hiding. The process of encryption and decryption is performed using this concept. Video steganography hides the secret key that is used for password authentication. All the secret data is hidden inside the frames of the video using Python software. The system increases the security level using these two methods at the theatre. The theatre owner is allowed to make the password entry. Once the

password gets verified, the system considers the owner to be an authorized person and allows the movie to be played in the theatre. Consequently the IR LEDs placed along the screen gets turned on which do not cause any disturbance to the audience watching the movie. However they cause disturbance to the movie that is being captured by the cameras. This makes the captured content unfit to be uploaded to the websites. On the other hand if any other person other than the theatre owner, or any person who doesn't have the information of the password tries to make a password entry, the system considers them as an unauthorized person. Hence does not allow the movie to be played in the theatre. An alert message is sent to the concerned person or to the theatre owner displaying that an unauthorized person tried to play the movie along with the place where it was tried to be played. This system is easy to implement. It can be used for detecting any kind of piracy and to track online videos to avoid illegal leakage. This system will have low cost, low power consumption and high accuracy.

INNOVATION IN THE PROJECT: The system increases the security level using these two methods at the theatre. The theatre owner is allowed to make the password entry. Once the password gets verified, the system considers the owner to be an authorized person and allows the movie to be played in the theatre. Consequently the IR LEDs placed along the screen gets turned on which do not cause any disturbance to the audience watching the movie. However they cause disturbance to the movie that is being captured by the cameras. This makes the captured content unfit to be uploaded to the websites.

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SCOPE FOR FUTURE WORK: Infrared transmitters can be used to transmit the steganographically hidden information to a receiver that can decode it and identify the source of the pirated content. However, it is important to note that this approach has limitations and can be circumvented by sophisticated pirates using advanced encryption techniques or by simply removing the identifying information altogether.

To enhance the effectiveness of this approach, future developments could focus on improving the steganography algorithms to make it more difficult to detect and remove the hidden information. Additionally, the use of other forms of identification, such as digital signatures or blockchain technology, could further strengthen the anti-piracy measures.

Ultimately, the most effective way to tackle movie piracy is through a combination of technological solutions, legal measures, and consumer education. By working together, we can help protect the rights of content creators and ensure a fair and sustainable entertainment industry for all

