

<b>FORM 1</b> THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 <b>APPLICATION FOR GRANT OF PATENT</b> (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)	
				Application No.	
				Filing date:	
				Amount of Fee paid:	
				CBR No:	
				Signature:	
<b>1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)</b>					
<b>2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]</b>					
Ordinary (✓)		Convention ( )		PCT-NP ( )	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )
<b>3A. APPLICANT(S)</b>					
Name in Full		Nationality	Country of Residence	Address of the Applicant	
Prof. Kalpana Bhure		Indian	India	House No.	Kh.No.68 & 72
Arju Lokande				Street	Koradi Road
Diksha Shelke				City	Lonara, Nagpur
Pooja Jawade				State	Maharashtra
Prachi Pagare				Country	India
				Pin code	441111
<b>3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]</b>					
Natural Person (✓)		Other than Natural Person			
		Small Entity ( )	Startup ( )	Others ( )	
<b>4. INVENTOR(S) [Please tick (✓) at the appropriate category]</b>					
Are all the inventor(s)		Yes (✓)		No ( )	



<b>10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION</b>	
Original (first) application No.	Date of filing of original (first) application
Not Applicable	
<b>11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT</b>	
Main application/patent No.	Date of filing of main application
Not Applicable	
<b>12. DECLARATIONS</b>	
<b>(i) Declaration by the inventor(s)</b> (In case the applicant is an assignee: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period). I/We, the above named inventor(s) is/are the true & first inventor(s) for this Invention and declare that the applicant(s) herein is/are my/our assignee or legal representative. (a) Date 25/05/2022 (b) Signature(s) 1) Prof. Kalpana Bhure 2) Arju Lokhande 3) Diksha Shelke 4) Pooja Jawade 5) Prachi Pagare (c) Name(s)	
<b>(ii) Declaration by the applicant(s) in the convention country</b> (In case the applicant in India is different than the applicant in the convention country) ← ..... Not Applicable ..... →  (a) Date (b) Signature(s)    (c) Name(s) of the signatory	

**(iii) Declaration by the applicant(s)**

I/We the applicant(s) hereby declare(s) that: -

I am/ We are in possession of the above-mentioned invention.

The provisional/complete specification relating to the invention is filed with this application.

└ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.

There is no lawful ground of objection(s) to the grant of the Patent to me/us.

└ I am/we are the true & first inventor(s).

└ I am/we are the assignee or legal representative of true & first inventor(s).

└ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention(s).

└ I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.

└ My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.

└ The application is divided out of my /our application particulars of which is given in Paragraph-10 and pray that this application may be treated as deemed to have been filed on DD/MM/YYYY under section 16 of the Act.

└ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

**13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION**

(a) Form 2

Item	Details	Fee	Remarks
Complete/ provisional specification)#	No. of pages - 8	Rs.1750	Demand Draft :YES Bank: Bank of Maharashtra DD No: 600154 DD Date: 08/06/2022 Amount: Rs.1750
No. of Claim(s)	No. of claims -02 No. of pages-01		
Abstract	No. of pages-01		
No. of Drawing(s)	No. of drawings -01 No. of pages-01		

# In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

- \* Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- \* Sequence listing in electronic form
- \* Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- \* Priority document(s) or a request to retrieve the priority document(s) from DAS (Digital Access Service) if the applicant had already requested the office of first filing to make the priority document(s) available to DAS.
- \* Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.
- \* ✓ Statement and Undertaking on Form 3
- \* ✓ Declaration of Inventorship on Form 5
- \* Power of Authority

(j).....

.....

**Total fee ₹1750 in Cash/ Banker's Cheque /Bank Draft bearing No 600154      Date 08/06/2022 on Bank of Maharashtra Bank**

I/We hereby declare that to the best of my/our knowledge, information and belief the facts and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Dated this of Wednesday of 08/06/2022

Signature:

- Prof. Kalpana Bhure
- Arju Lokhande
- Diksha Shelke
- Pooja Jawade
- Prachi Pagare

Name:

To,

The Controller of Patents

The Patent Office, at Mumbai

Note: -

- \* Repeat boxes in case of more than one entry.
- \* To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
- \* Tick (✓)/cross (x) whichever is applicable/not applicable in declaration in paragraph-12.
- \* Name of the inventor and applicant should be given in full, family name in the beginning.
- \* Strike out the portion which is/are not applicable.
- \* For fee: See First Schedule”;



In, FORM 2  
THE PATENT ACT 1970  
(39 OF 1970)

&

The Patents Rules, 2003  
PROVISIONAL/COMPLETE SPECIFICATION

**1. TITLE OF THE INVENTION:** Image Steganography using K-means and Encryption

**2. APPLICANT(S)**

- (a) 1-NAME: Prof. Kalpana Bhure
- (b) NATIONALITY: Indian
- (c) ADDRESS: Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111
- (a) 2-NAME: Ms. Arju Lokhande
- (b) NATIONALITY: Indian
- (c) ADDRESS: Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111
- (a) 3-NAME: Ms. Diksha Shelke
- (b) NATIONALITY: Indian
- (c) ADDRESS: Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111
- (a) 4-NAME: Ms. Pooja Jawade
- (b) NATIONALITY: Indian
- (c) ADDRESS: Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111
- (a) 5-NAME: Ms. Prachi Pagare
- (b) NATIONALITY: Indian
- (c) ADDRESS: Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111



### 3. PREAMBLE TO THE DESCRIPTION

#### COMPLETE

1. In this paper, we propose an image steganography method which clusters the data and hides the image.
2. It would be great to work on a method of de-clustering the transferred data upon reaching the receiver.
3. The system can be used in real-time applications such as E-commerce, Banking, and Military and so on for security purposes.

Signature of inventor(s)

## 4. DESCRIPTION

Field of the invention: **Image Steganography using Kmeans and Encryption**

### **Background of the invention:**

Today digital data can be easily copied and multiplied without information loss. It has become imperative to verify the owner of a digital data, to identify illegal copies of the multimedia content and to prevent unauthorized distribution. Information hiding techniques have thus recently received great attention from the research community.

Steganography involves hiding of text, image or any sensitive information inside another image, video or audio in such a way that an attacker will not be able to detect its presence.

Steganography is, many times, confused with cryptography as both the techniques are used to secure information.

The difference lies in the fact that steganography hides the data so that nothing appears out of ordinary while cryptography encrypts the text, making it difficult for an outsider to infer anything from it even if they do attain the encrypted text.

Both of them are combined to increase the security against various malicious attacks. Image Steganography uses an image as the cover media to hide the secret message.

### **Objective of invention:**

- To test the usefulness of several image steganographic models in banking.
- K means is a clustering algorithm whose main objective and aim is to group similar elements or data points into a cluster.
- Kmeans is an unsupervised clustering machine learning technique used to cluster data.
- The main objective of steganography is to hide the existence of the embedded data. Steganography technique has improved the security of existing data hiding techniques by the outstanding development in computational power.

software dependency.

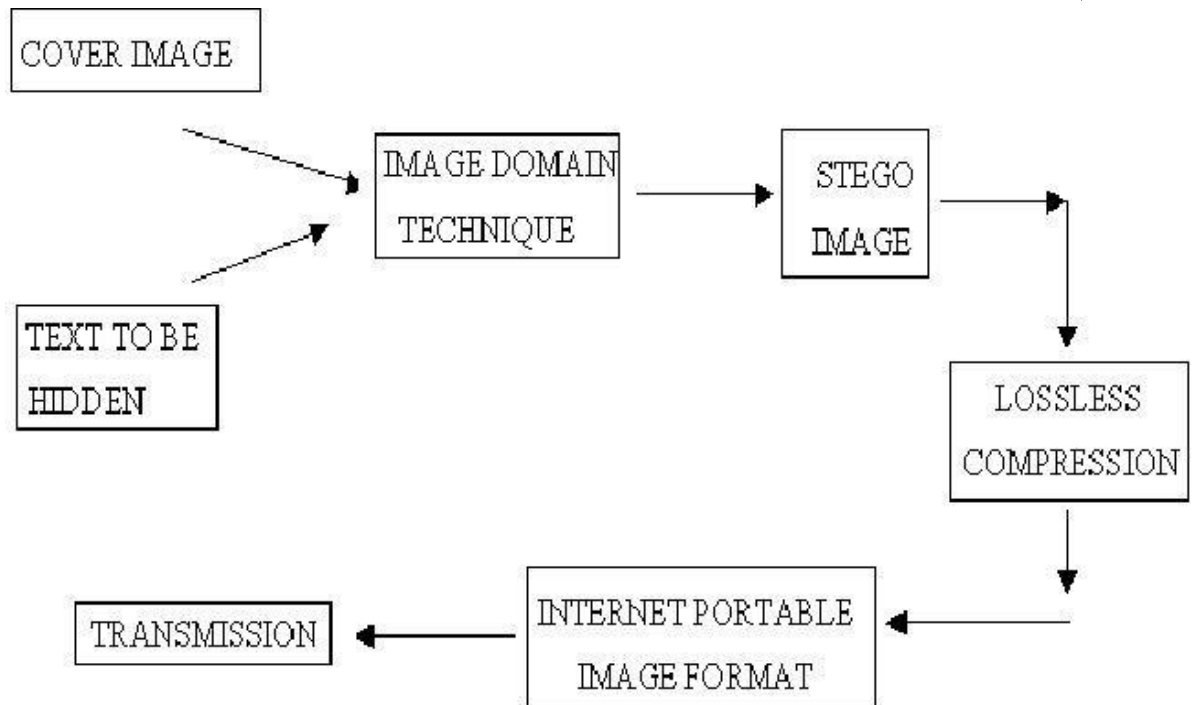
### **Statement of invention:**

Most data hiding systems take advantage of human perceptual weaknesses. Steganography is often confused with cryptography because the two are similar in the way that they both are used to protect secret information. If both the techniques: cryptography and steganography is used then the communication becomes double secured. The main difference between Steganography and cryptography is that, cryptography concentrates on keeping the contents of a message secret while steganography concentrates on keeping the existence of a message secret. Steganography and cryptography are both needed to protect messages from third party but each one with its own. Thus, when there is a need protect the presence of message; the steganography is the solution. Probably most common cover media are multimedia objects which are images, audio, and video.

### **Summary of invention:**

The initial aim of this study was to investigate steganography and how it is implemented. Based on this work a number of common methods of steganography could then be implemented and evaluated. The strengths and weaknesses of the chosen methods can then be analysed. To provide a common frame of reference all of the steganography methods implemented and analysed used GIF images. Seven steganography methods were implemented. The methods were chosen for their different strengths in terms of resistance to different types of steganalysis or their ability to maximise the size of the message they could store. All of the methods used were based on the manipulation of the least significant bits of pixel values or the rearrangement of colours to create least significant bit or parity patterns, which correspond to the message being hidden.

**Drawings, Figures (with signature):**



**fig :(4.1)flow diagram for Image Steganography Using K-means & Encryption**

Signature of inventors

**Detailed description of the invention:**

Objectives of steganography are Undetectability, robustness and capacity of the concealed data, these key factors that separate it from related techniques like cryptography and watermarking. This paper delivers a survey on digital images steganography and covering its fundamental concepts.

The development of image steganographic methods in spatial representation, in JPEG format and also discuss the recent development in the field of image steganography. Specific generally used approaches for increasing steganographic security are summarized and significant research developments are also discussed.

The important feature of this system is to work over cloud platform as well as, a independent standalone physical system

Another important feature of this system altered picture closely resembles original. Not susceptible to attacks such as rotation and translation. Hard to detect as message and fundamental image data share same range. To hide the existence of a message from a third party.

## 5. CLAIMS :

We claim –

### 1. Image Steganography using K-means and Encryption which comprises:

- This is a process which can be used for example by civil rights organisations in repressive state to communicate their message to the outside world without their own government being aware of it.
- A system which can be used by terrorist to communicate with one another without anyone else's knowledge.

### 2. Method/Process claims –

- Image enhancement
- Hide data
- Data detect
- To get accurate results in a small time period we use K-means clustering machine learning technique.

**6. DATE AND SIGNATURE** (To be given at the end of last page of specification)

Dated this ..... day of .....20.....

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(Signature of inventor(s))

## **7. ABSTRACT OF INVENTION**

Nowadays, the community has important roles for transferring records precisely and quick from source to a destination. In this project we are develop new algorithm to Image Steganography Using Kmeans & Encryption technique Steganography is defined as the study of invisible communication. Steganography is defined as the study of invisible communication. Steganography usually deals with the ways of hiding the existence of the communicated data in such a way that it remains confidential. It maintains secrecy between two communicating parties. In image steganography, secrecy is achieved by embedding data into cover image and generating a stego-image. There are different types of steganography techniques each have their strengths and weaknesses. In this paper, we review the different security and data hiding techniques that are used to implement a steganography such as LSB, ISB, MLSB etc. Most of the existing steganographic algorithms are performed in pixel domain as it provides more embedding space (capacity), reliability and controllability in encoding/decoding of the hidden message.

Signature of inventor(s)



<b>FORM 3</b> THE PATENTS ACT, 1970 (39 of 1970) and THE PATENTS RULES, 2003 <b>STATEMENT AND UNDERTAKING UNDER SECTION 8</b> (See section 8; Rule 12)					
1. Name of the applicant(s). Prof. Kalpana Bhure Arju Lokhande Diksha Shelke Pooja Jawade Prachi Pagare		I/We Prof. Kalpana Bhure Arju Lokhande Diksha Shelke Pooja Jawade Prachi Pagare  hereby declare:			
2. Name, address and nationality of the joint applicant.  Not applicable		(i) that I/We have not made any application for the same/substantially the same invention outside India  Or (ii) that I/We who have made this application No.....dated ..... alone/jointly with ....., made for the same/ substantially same invention, application(s) for patent in the other countries, the particulars of which are given below:			
Name of the country	Date of applicatio N	Applicati on No.	Status of the application	Date of publication	Date of grant
India					
3. Name and address of the assignee			(iii) that the rights in the application(s) has/have been assigned  to.....		

	<p>.....</p> <p>that I/We undertake that upto the date of grant of the patent by the Controller, I/We would keep him informed in writing the details regarding corresponding applications for patents filed outside India within six months from the date of filing of such application.</p> <p>Dated this.....day of.....20.....</p>
4. To be signed by the applicant or his authorized registered patent agent.	Signature. ....
5. Name of the natural person who has signed.	1)Prof.Kalpana Bhure 2)Arju Lokhande 3)Diksha Shelke 4)Pooja Jawade 5)Prachi Pagare
	To The Controller of Patents, The Patent Office, At <u>Mumbai</u>
Note.- Strike out whichever is not applicable;	

FORM 5  
THE PATENTS ACT, 1970 (39 of 1970)  
&  
THE PATENTS RULES, 2003  
DECLARATION AS TO INVENTORSHIP  
(See section 8, rule 12)

1. NAME OF APPLICANT(S)

- 1) Prof. Kalpana Bhure
- 2) Arju Lokhande
- 3) Diksha Shelke
- 4) Pooja Jawade
- 5) Prachi Pagare

hereby declare that the true and first inventor(s) of the invention disclosed in the complete specification filed in pursuance of my/our application numbered \_\_\_\_\_ dated \_\_\_\_\_ is/are

2. INVENTOR(S) 1)

- (a) NAME : Prof. Kalpana Bhure
- (b) NATIONALITY : Indian
- (c) ADDRESS : Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111

2)

- (a) NAME : Ms. Arju Lokhande
- (b) NATIONALITY : Indian
- (c) ADDRESS : Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111

3)

- (a) NAME : Ms. Diksha Shelke
- (b) NATIONALITY : Indian
- (c) ADDRESS : Jhulelal Institute of Technology, Off Koradi Road, Nagpur, Maharashtra-441111

4)

- (a) NAME : Ms. Pooja Jawade
- (b) NATIONALITY : Indian
- (c) ADDRESS : Jhulelal Institute of Technology, Off Koradi Road, Nagpur,

Maharashtra-441111

5)

(a) NAME : Ms. Prachi Pagare

(b) NATIONALITY : Indian

(c) ADDRESS : Jhulelal Institute of Technology, Off Koradi Road, Nagpur,  
Maharashtra-441111

Dated this .....day of ..... 20.....

Signature:

Name of the signatory:

6) Declaration to be given when the application in India is filed by the Applicant(s)  
in the convention country: -

We the applicant(s) in the convention country hereby declare that our right to apply  
for a patent in India is by way or assignment from the true and first inventor(s).

Dated this .....day of ..... 20.....

Signature:-

Name of the signatory:-

7) STATEMENT (to be signed by the additional inventor(s) not mentioned in the  
application form)

I/We assent to the invention referred to in the above declaration, being included in  
the complete specification filed in pursuance of the stated application.

Dated this .....day of .....20.....

Signature of the additional inventor(s): -  
Name: -

To,  
The Controller of Patents  
The Patent Office, Mumbai

Note:-

\*Repeat boxes in case of more than one entry.

\*To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.

\*Name of the inventor and applicant should be given in full, family name in the beginning.

\*Complete address of the inventor should be given stating the postal index no./ code, state and country.

\* Strike out the column(s) which is/are not applicable.