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(71)Name of Applicant :
1)Brainware University, Kolkata
Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 -----
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Mr. Debarun Joardar
Address of Applicant :Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----
2)Shiplu Das
Address of Applicant :Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----

3)Mr. Uddipan Chakraborty
Address of Applicant :Student, Barrackpore - Kalyani Expy, Block A5, Block A, Kalyani, West Bengal 741235 -----
4)Abhishikta Bhattacharjee
Address of Applicant :Assistant Professor, English and Literary Studies, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----
5)Tanusree Gupta
Address of Applicant :Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----

6)Koushik Mukhopadhyay
Address of Applicant :Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----

7)Dr. Debdutta Pal
Address of Applicant :Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----
8)Gargi Chakraborty
Address of Applicant :Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----
9)Sayan Mondal
Address of Applicant :Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----
10)Romit Kumar Pal
Address of Applicant :Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125 -----

(57) Abstract :

The present invention discloses a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof. The system utilizes advanced video and audio analysis techniques along with artificial intelligence and machine learning algorithms to provide accurate and timely responses to incidents. It delivers real-time information to authorities, acting as an early warning system, and provides a centralized view of the situation, enhancing situational awareness. The system's design enables optimal resource utilization, making it cost-effective and commercially viable. The scalable nature of the system allows it to adapt to different situations and environments across India. It includes a centralized data repository for improved data management and decision-making. The system's ability to integrate with existing infrastructure facilitates coordination among authorities. The system is customizable to accommodate the unique challenges of the Indian context, including geography, culture, and demographics. Accompanied Drawing [FIGS. 1]

No. of Pages : 18 No. of Claims : 10


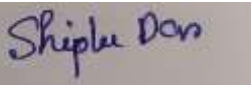
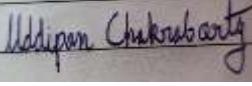
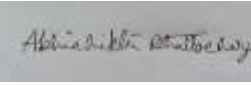
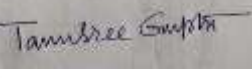
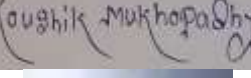

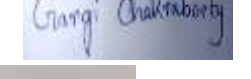
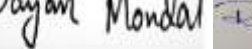
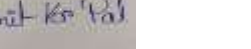
“FORM 1 THE PATENTS ACT 1970 (39 of 1970) and THE PATENTS RULES, 2003 APPLICATION FOR GRANT OF PATENT (See section 7, 54 and 135 and sub-rule (1) of rule 20)				(FOR OFFICE USE ONLY)	
				Application No.	
				Filing date:	
				Amount of Fee paid:	
				CBR No:	
				Signature:	
1. APPLICANT’S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (✓)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()
3A. APPLICANT(S)					
Name in Full		Nationality	Country of Residence	Address of the Applicant	
Brainware University, Kolkata		Indian	India	398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125	
3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]					
Natural Person ()		Other than Natural Person			
		Small Entity (✓)	Startup ()	Others ()	
4. INVENTOR(S) [Please tick (✓) at the appropriate category]					
Are all the inventor(s) same as the applicant(s) named above?		Yes ()		No (✓)	
If “No”, furnish the details of the inventor(s)					
Name in Full		Nationality	Country of Residence	Address of the Inventor	
1. Mr. Debarun Joardar		Indian	India	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125	

2. Shiplu Das	Indian	India	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
3. Mr. Uddipan Chakraborty	Indian	India	Student, Barrackpore - Kalyani Expy, Block A5, Block A, Kalyani, West Bengal 741235
4. Abhishikta Bhattacharjee	Indian	India	Assistant Professor, English and Literary Studies, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
5. Tanusree Gupta	Indian	India	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
6. Koushik Mukhopadhyay	Indian	India	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
7. Dr. Debductta Pal	Indian	India	Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
8. Gargi Chakraborty	Indian	India	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
9. Sayan Mondal	Indian	India	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
10. Romit Kumar Pal	Indian	India	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
5. TITLE OF THE INVENTION			

"A Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof"					
6. AUTHORISED REGISTERED PATENT AGENT(S)			IN/PA No.		
			Name		
			Mobile No.		
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA			Name		Mahua Pal
			Postal Address		Brainware University, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125
			Telephone No.		
			Mobile No.		9831960033
			Fax No.		
			E-mail ID		registrar@brainwareuniversity.ac.in
8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN-CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION					
Country	Application Number	Filing date	Name of the applicant	Title of the invention	IPC (as classified in the convention country)
9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT)					
International application number			International filing date		
10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION					
Original (first) application No.			Date of filing of original (first) application		
11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT					
Main application/patent No.			Date of filing of main application		
12. DECLARATIONS					
i) Declaration by the inventor(s)					
(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 21/07/2023

(b) Name	(c) Signature
1. Mr. Debarun Joardar	 
2. Shiplu Das	
3. Mr. Uddipan Chakraborty	
4. Abhishikta Bhattacharjee	
5. Tanusree Gupta	
6. Koushik Mukhopadhyay	
7. Dr. Debduitta Pal	
8. Gargi Chakraborty	
9. Sayan Mondal	
10. Romit Kumar Pal	

(ii) Declaration by the applicant(s) in the convention country

~~(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)~~

~~I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative.~~

~~(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

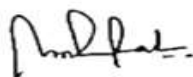
Item	Details	Fee	Remarks
Complete/ Provisional specification) #	No. of pages: 14		
No. of Claim(s)	No. of claims: 10 No. of pages: 02		
Abstract	No. of pages: 01		
No. of Drawing(s)	No. of drawings: 01 No. of pages: 01		

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.

- (b) Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (c) Sequence listing in electronic form
- (d) Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies).
- (e) 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.
- (f) Translation of priority document/Specification/International Search Report/International Preliminary Report on Patentability.
- (g) Statement and Undertaking on Form 3
- (h) Declaration of Inventorship on Form 5
- (i) Power of Authority
- (j) **Total fee ₹.....in Cash/ Banker's Cheque /Bank Draft bearing No.....
Date on Bank.**

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

Dated this 21st day of July 2023



**Registrar
Brainware University
Barrasat, Kolkata- 700125**

Signature:

Name: Mahua Pal

Applicant: Brainware University, Kolkata

To,
The Controller of Patents
The Patent Office, at Kolkata

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”;

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

5

The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

10

TITLE OF THE INVENTION

“A Real-time Surveillance System for Crime Prevention and Mob Violence
Management and method thereof”

Applicant:

15

Brainware University, Kolkata,

398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West

Bengal 700125.

The following specification particularly describes the nature of the invention and the
20 manner in which it is performed:

FIELD OF THE INVENTION

[001] The present invention relates to the field of public safety and surveillance, more specifically to a real-time surveillance system leveraging advanced technologies to prevent crime and manage mob violence in India.

BACKGROUND OF THE INVENTION

[002] Traditional surveillance systems are limited in their capability to detect and react promptly to incidents of mob violence, weapon use, and other criminal activities, especially in a diverse and complex socio-cultural context like India. Thus, there's a need for a more effective and efficient surveillance system customized to the specific needs of the Indian context.

[003] The Mob, Weapon and Violence Detection based Crime Prevention System is a cutting-edge solution that leverages the power of AI to detect and prevent criminal activities involving weapons and violence. The system uses a combination of cameras, sensors, and machine learning algorithms to analyze real-time video and audio data, identify potential threats, and alert law enforcement agencies. The technology is capable of detecting a wide range of weapons, including firearms, knives, and blunt objects, and can also detect and analyze the behavior of individuals to determine if they pose a potential threat. The system is designed to be highly accurate, efficient, and reliable, and can play a crucial role in preventing crimes and reducing the risk of injury or loss of life. By providing real-time information and insights, the Mob, Weapon and Violence Detection based Crime Prevention System helps law enforcement agencies respond more quickly and effectively to incidents, and provides a valuable tool for improving public safety. The integration of AI technology in this system represents a significant step forward in the use of AI

for crime prevention and is poised to revolutionize the way law enforcement agencies approach crime fighting in the future.

[004] Computer Vision: Computer vision techniques, such as object detection and tracking, can be used to identify and track people, weapons, and other objects in video footage.

[005] Deep Learning: Deep learning algorithm, YOLO v7 used to analyse and classify images and videos in real-time. This algorithm can be trained on large datasets to recognize objects and activities that are relevant to mob, weapon, and violence detection.

[006] Artificial Intelligence: AI algorithms, such as machine learning and deep reinforcement learning, can be used to develop intelligent systems that can make decisions and respond to different situations in real-time.

[007] Internet of Things (IoT): IoT technologies can be used to integrate different sensors and devices, such as cameras and microphones, to provide real-time monitoring and alert authorities in case of any suspicious activity.

[008] Big Data: Big data technologies Apache Spark, is used to store, process, and analyse large amounts of data, such as video and audio footage, in real-time.

[009] OpenCV: OpenCV is a powerful open-source computer vision library that can be used to implement various computer vision algorithms for detecting and tracking people, weapons, and other objects in real-time.

[010] TensorFlow Lite: TensorFlow Lite is a lightweight version of TensorFlow, designed for mobile and embedded devices. It can be used to develop deep learning models for mob, weapon, and violence detection.

[011] Server-side languages: Server-side programming languages such as Python is used to develop the back-end logic for the system. These languages provide a range of libraries and frameworks for handling various tasks, such as database access, data processing, and communication with other systems.

5 **[012]** Databases: Databases, such as MySQL, MongoDB, and PostgreSQL, can be used to store and manage the data generated by the system. These databases can be used to store information such as user profiles, video and audio recordings, and event logs.

[013] Web Frameworks: Web frameworks, such as Django and Flask, is used
10 to develop the server-side components of the system. These frameworks provide a range of tools and libraries for building web applications, handling HTTP requests, and rendering dynamic web pages.

[014] Cloud Services: Cloud services, such as Amazon Web Services (AWS) is used to host the system and manage its infrastructure. These services
15 provide a range of tools and services for scaling the system, managing data storage, and handling security and privacy concerns.

[015] Message Queuing Systems: Message queuing systems, such as RabbitMQ and Apache Kafka, can be used to handle the communication
20 between the various components of the system. These systems can be used to distribute tasks, such as data processing and event notifications, to different parts of the system.

[016] The problem of mob violence, weapon use, and crime in India is a serious concern that requires effective and proactive solutions. A mob violence and crime prevention system can help reduce the frequency and
25 severity of these incidents by providing early warning and response

capabilities to the relevant authorities. A possible solution to this problem is the development of a real-time surveillance system that combines various technologies, such as video and audio analysis, artificial intelligence, and machine learning. This system could be designed to detect signs of criminal activity and mob violence, such as the presence of weapons or large gatherings of people, and alert the authorities to take appropriate action. The system could also be integrated with existing databases, such as criminal records and police reports, to provide a more complete picture of the situation and help the authorities make informed decisions. Additionally, the system could be linked to a centralized command and control center, which would allow for effective coordination and response to incidents as they occur. The implementation of such a system would require a significant investment in technology, training, and infrastructure. However, it has the potential to greatly improve public safety and reduce the frequency and severity of criminal incidents in India. It is also important to note that while technology can help prevent crime and violence, it should be used in conjunction with other measures, such as community engagement and education programs, to address the root causes of these problems and create a safer and more peaceful society.

[017] Accordingly, on the basis of aforesaid facts, there remains a need in the prior art to provide a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof. Therefore, it would be useful and desirable to have a system, method, apparatus and interfaces to meet the above-mentioned needs.

SUMMARY OF THE PRESENT INVENTION

[018] In view of the foregoing disadvantages inherent in the known types of conventional systems, methods and techniques, are now present in the prior art, the present invention provides a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof, which has all the advantages of the prior art and none of the disadvantages.

[019] It is an object of the present invention, to provide a real-time surveillance system, which is designed for mob violence, weapon use, and crime prevention in India. The system employs advanced video and audio analysis, artificial intelligence, and machine learning algorithms. It provides real-time information and early warning capabilities to authorities, optimizes resource utilization, and enhances situational awareness. The system can be scaled to adapt to different situations and environments. It offers centralized data management and integrates with existing infrastructure for improved coordination among authorities. The system is designed keeping in mind the unique geographical, cultural, and demographic needs of India.

[020] In this respect, before explaining at least one object of the invention in detail, it is to be understood that the invention is not limited in its application to the details of set of rules and to the arrangements of the various models set forth in the following description or illustrated in the drawings. The invention is capable of other objects and of being practiced and carried out in various ways, according to the need of that industry. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

[021] These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with

particularity in the disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention.

5 **BRIEF DESCRIPTION OF THE DRAWINGS**

[022] When considering the following thorough explanation of the present invention, it will be easier to understand it and other objects than those mentioned above will become evident. Such description refers to the illustrations in the annex, wherein:

10 **[023] FIG. 1**, illustrates a schematic diagram and representation of a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof, Clinicians, and Doctors, in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

15 **[024]** The following sections of this article will provide various embodiments of the current invention with references to the accompanying drawings, whereby the reference numbers utilised in the picture correspond to like elements throughout the description. However, this invention is not limited to the embodiment described here and may be embodied in several other ways.

20 Instead, the embodiment is included to ensure that this disclosure is extensive and complete and that individuals of ordinary skill in the art are properly informed of the extent of the invention. Numerical values and ranges are given for many parts of the implementations discussed in the following thorough discussion. These numbers and ranges are merely to be used as examples

25 and are not meant to restrict the claims' applicability. A variety of materials are

also recognised as fitting for certain aspects of the implementations. These materials should only be used as examples and are not meant to restrict the application of the innovation.

[025] Referring now to the drawings, these are illustrated in FIG. 1, the present invention discloses a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof.

[026] In accordance with another embodiment of the present invention, Advanced Technology: The system uses the latest advances in video and audio analysis, artificial intelligence, and machine learning algorithms to provide accurate and timely surveillance data.

[027] In accordance with another embodiment of the present invention, Real-time Information and Early Warning: The system provides real-time information to authorities and an early warning system to enable quick and effective response to incidents.

[028] In accordance with another embodiment of the present invention, Increased Situational Awareness: The system provides a centralized view of the situation, improving authorities' understanding and decision-making, reducing false alarms and miscommunication.

[029] In accordance with another embodiment of the present invention, Resource Optimization: The system's efficiency enables the authorities to use resources more effectively, reducing overall system cost and increasing its commercial viability.

[030] In accordance with another embodiment of the present invention, Scalability: The system's scalability allows it to adapt to different situations and environments, making it effective across the diverse Indian subcontinent.

[031] In accordance with another embodiment of the present invention, Data Management: The system includes a centralized data repository for easier data management and improved decision-making.

[032] In accordance with another embodiment of the present invention, Improved Coordination: The system's integration with existing infrastructure enables better coordination among authorities and reduces the risk of confusion and miscommunication.

[033] In accordance with another embodiment of the present invention, Customization for Indian Context: The system can be customized for the specific challenges and needs of the Indian context, including geography, culture, and demographics.

[034] The above-mentioned invention is provided with the preciseness in its real-world applications to provide a Real-time Surveillance System for Crime Prevention and Mob Violence Management and method thereof. The product that would be deployed to address the problem of mob violence, weapon use, and crime prevention in India is a real-time surveillance system. This system would use a combination of video and audio analysis, artificial intelligence, and machine learning algorithms to detect and alert the relevant authorities of potential incidents in real-time. The system would consist of a network of cameras and audio sensors strategically placed in public areas such as parks, streets, and marketplaces. The cameras and audio sensors would capture video and audio data, which would then be processed and analyzed by the artificial intelligence algorithms in real-time. The algorithms would be trained to detect signs of mob violence, weapon use, and other criminal activities, and to trigger an alert to the relevant authorities when such activities are detected.

The authorities would then be able to access live video feeds and audio recordings from the cameras and audio sensors to assess the situation and respond appropriately. In addition to the real-time surveillance capabilities, the system would also provide a centralized repository for data and information, allowing the authorities to manage and analyze data more effectively. The system would also be scalable, allowing it to be adapted to different situations and environments in India, and it would be customized to take into account the unique challenges and needs of the Indian context. Overall, the real-time surveillance system would provide the authorities with powerful tool to help prevent mob violence, weapon use, and crime in India, and to keep the public safe and secure.

[035] While the present invention has been described with reference to particular embodiments, it should be understood that the embodiments are illustrative and that the scope of the invention is not limited to these embodiments. Many variations, modifications, additions and improvements to the embodiments described above are possible. It is contemplated that these variations, modifications, additions and improvements fall within the scope of the invention.

[036] The benefits and advantages that the present invention may offer have been discussed above with reference to particular embodiments. These benefits and advantages are not to be interpreted as critical, necessary, or essential features of any or all of the embodiments, nor are they to be read as any elements or constraints that might contribute to their occurring or becoming more evident.

[037] Although specific embodiments have been used to describe the current invention, it should be recognized that these embodiments are merely illustrative and that the invention is not limited to them. The aforementioned embodiments are open to numerous alterations, additions, and improvements.

5 These adaptations, changes, additions, and enhancements are considered to be within the purview of the invention.

We Claim:

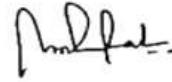
1. A real-time surveillance system for mob violence, weapon use, and crime prevention in India, the system comprising:
2. The system of claim 1, wherein the system leverages advanced video and audio analysis techniques to gather surveillance data.
3. The system of claim 1, further including artificial intelligence and machine learning algorithms that interpret and act on the surveillance data to provide accurate and timely responses.
4. The system of claim 1, wherein the system delivers real-time information to authorities, facilitating an early warning system to enable swift and effective response to incidents.
5. The system of claim 1, further including a feature that provides a centralized view of the situation, thereby enhancing authorities' situational awareness and reducing the risk of false alarms and miscommunication.
6. The system of claim 1, wherein the system's design enables optimal resource utilization, thereby reducing overall system cost and increasing its commercial viability.
7. The system of claim 1, wherein the system is scalable to adapt to different situations and environments across the diverse Indian subcontinent.
8. The system of claim 1, wherein the system includes a centralized data repository that aids in easier data management and improved decision-making.
9. The system of claim 1, wherein the system's design allows for integration with existing infrastructure, thereby improving coordination among authorities and reducing the risk of confusion and miscommunication.

10. The system of claim 1, wherein the system can be customized to accommodate the specific challenges and needs of the Indian context, including its geography, culture, and demographics.

5 Dated this 21st day of July 2023

Applicant

Brainware University, Kolkata



Registrar

Brainware University

Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

ABSTRACT

A Real-time Surveillance System for Crime Prevention and Mob Violence

Management and method thereof

[038] The present invention discloses a Real-time Surveillance System for Crime
5 Prevention and Mob Violence Management and method thereof. The system utilizes
advanced video and audio analysis techniques along with artificial intelligence and
machine learning algorithms to provide accurate and timely responses to incidents. It
delivers real-time information to authorities, acting as an early warning system, and
provides a centralized view of the situation, enhancing situational awareness. The
10 system's design enables optimal resource utilization, making it cost-effective and
commercially viable. The scalable nature of the system allows it to adapt to different
situations and environments across India. It includes a centralized data repository for
improved data management and decision-making. The system's ability to integrate
with existing infrastructure facilitates coordination among authorities. The system is
15 customizable to accommodate the unique challenges of the Indian context, including
geography, culture, and demographics.

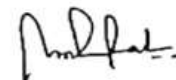
Accompanied Drawing [FIGS. 1]

Dated this 21st day of July 2023

20

Applicant

Brainware University, Kolkata



Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal


FORM 3
 THE PATENTS ACT, 1970
 (39 of 1970)
 and
 THE PATENTS RULES, 2003
STATEMENT AND UNDERTAKING UNDER SECTION
8
 (See section 8; Rule 12)

1. Name of the applicant(s).	We, Brainware University, Kolkata having office at, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125.
------------------------------	--

2. Name, address and nationality of the joint applicant.	<p>(i) that I/We have not made any application for the same/substantially the same invention outside India</p> <p>Or</p> <p>(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:</p>
--	---

Name of the Country	Date of Application	Application No.	Status of the Application	Date of Publication	Date of grant
-	-	-	-	-	-

3. Name and address of the assignee	<p>(iii) that the rights in the application(s) has/have been assigned to none</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 style="text-align: right;">Dated this 21st day of July 2023</p>
-------------------------------------	--

<p>4. To be signed by the applicant or his authorized registered patent agent.</p>	 Registrar Brainware University Barasat, Kolkata- 700125 Signature: Name: Mahua Pal
<p>5. Name of the natural person who has signed.</p>	<p>Brainware University, Kolkata Name of the Applicant</p>
	<p>To The Controller of Patents, The Patent Office, at Kolkata</p>
<p>Note.- Strike out whichever is not applicable;</p>	

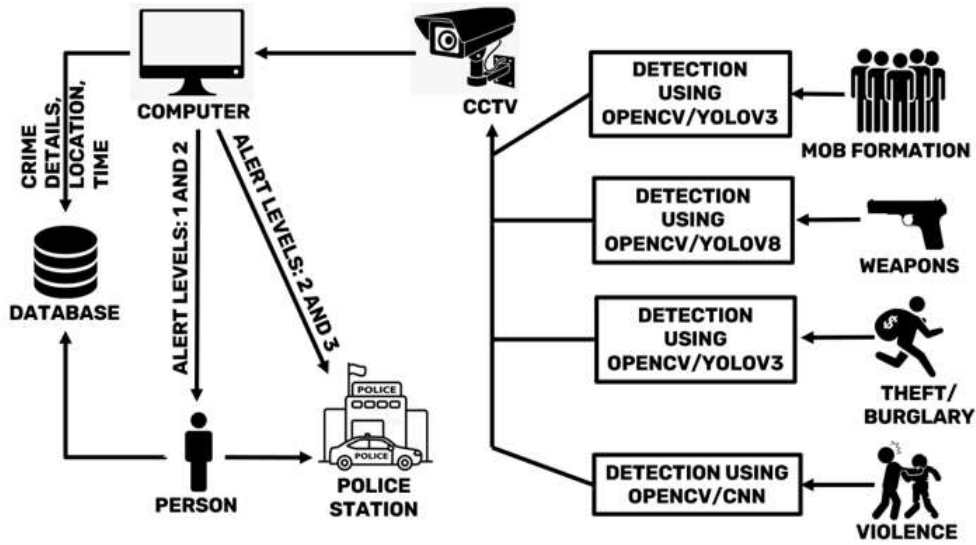


Figure 1

Dated this 21st day of July 2023

Name: Mahua Pal

Registrar
Brainware University
Barasat, Kolkata- 700125

Signature:

Applicant Name: Brainware University, Kolkata

FORM- 5
THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
DECLARATION AS TO INVENTORSHIP
[See Section 10(6) and Rule 13(6)]

1. NAME OF THE APPLICANT(S)

We, **Brainware University, Kolkata** having office at, 398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125.

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 21-07-2023 is/are

2. INVENTOR(S)

(a) NAME	(b) NATIONALITY	(c) ADDRESS
1. Mr. Debarun Joardar	Indian	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
2. Shiplu Das	Indian	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
3. Mr. Uddipan Chakraborty	Indian	Student, Barrackpore - Kalyani Expy, Block A5, Block A, Kalyani, West Bengal 741235
4. Abhishikta Bhattacharjee	Indian	Assistant Professor, English and Literary Studies, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
5. Tanusree Gupta	Indian	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125

6. Koushik Mukhopadhyay	Indian	Assistant Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
7. Dr. Deb Dutta Pal	Indian	Professor, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
8. Gargi Chakraborty	Indian	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
9. Sayan Mondal	Indian	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125
10. Romit Kumar Pal	Indian	Student, Computer Science Engineering, Brainware University, 398 Ramakrisnapur Road, Barasat, 700125

~~3. DECLARATION TO BE GIVEN WHEN THE APPLICATION IN INDIA IS FILED BY THE APPLICANT(S) IN THE CONVENTION COUNTRY:--~~

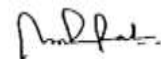
N.A.

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

Dated this 21st day of July 2023

Applicant

Brainware University, Kolkata



Registrar

Brainware University

Barasat, Kolkata- 700125

Signature:

Name: Mahua Pal

To,
The Controller of Patents
The Patent Office, Kolkata

FORM 9

THE PATENT ACT, 1970
(39 of 1970)
&
THE PATENTS RULES, 2003

REQUEST FOR PUBLICATION

[See section 11A (2) rule 24A]

I/We **Brainware University, Kolkata** hereby request for early publication of my/our [Patent Application No.]
TEMP/E-1/56683/2023-KOL

Dated **21/07/2023 00:00:00** under section 11A(2) of the Act.

Dated this(Final Payment Date):-----

Signature

Name of the signatory

To,
The Controller of Patents,
The Patent Office,
At Kolkata

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