Application of Digital Forensic Evidence in Hit and Run: A Comparative Study with Special Reference to § 304 Part II of IPC

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Abstract The developments of the new era in technology have reflected change in the existing system of investigating and judicial system with regard to evidence admissibility and reliance by the judiciary across jurisdictions. The criminal-jurisprudence has witnessed notable transformation with the use of scientific tools, procedures, and methodologies, which has become increasingly pivotal in delivering justice to the aggrieved. India accounts for 11% of all fatal traffic accident deaths worldwide despite owning only 1% of all vehicles and even fewer than 1% conviction rate, due to lack of proper evidence. How the digital forensic evidence in helping the legal system to encase allegations made under § 304A of the IPC to under § 304 Part II of the IPC is conveyed in this paper with the help of hit and run case instances. In addition to it, this paper also aims to establish the veracity and admissibility of the digital forensic evidence in the court of law and how the examination of its role has a different impact on two mostly identical cases with different investigation outcomes. In one instance, the accused was convicted due to the evaluation of digital evidence while in other he was acquitted due to lack of any proper forensic evidence. The authors have highlighted the challenges before the judges in deciding a criminal case or settle a legal dispute. Relying solely on witness testimony, who are seldom tutors or could not be relied upon might jeopardize the entire case proceedings. Thus, the authors argue for using forensics evidences to reconstruct the crime screen and corroborate the witness/victims testimony.

Keywords Hit and run · Digital forensic evidence · Closed-circuit television footage · Validating technique · Criminal-jurisprudence

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1 Introduction

Technology has rapidly evolved and advanced throughout time. As a result, it is crucial to adapt and alter in line with technological advancements. Courts and legislature have made it quite clear that they see the need for a change. For example, a crime has been committed in the darkness of night which leaves no room for any man to witness such incidence but the culprit and the perpetrator. When there is no one available to confirm the accuser's identity, circumstantial evidence may be used to demonstrate that a crime was committed. Nevertheless, video monitoring will allow the investigators to see the entire occurrence. The film includes descriptions of the event schedule, the criminal's tactics, and the attacker's entry and exit points. The CCTV footage can be used to disprove other types of evidence, such witness testimony, even though there are many reasons why this is not feasible. When a suspect is recognized, for example, or when the criminal comes into contact with a substance from which forensic evidence may be obtained, for example, the video can assist detectives in identifying those who were engaged in the incident directly or indirectly. Investigators can still use the recordings to determine the criminal's timeframe by using them. Investigators will utilize the CCTV footage to examine the veracity of the witnesses' and suspects' statements. The traditional method of the criminal justice system based on eyewitness testimony has made effective criminal prosecutions nearly impossible; this form of prosecution undermines the criminal justice system. Judges cannot decide a criminal case or settle a legal dispute based solely on the testimony of potential spinners of yarn or unreliable witnesses. The witnesses failed to appear at the scheduled hearings or refused to submit to the legal process. Even after carefully considering the main question and the counter-questions, the judges are unable to reach a firm verdict regarding the incident. Many times, despite their belief or having seen the evidence, the witnesses no longer appear before the court to give testimony because they fear being attacked by suspects or other criminals, which could be fatal. The public ministry spends a substantial amount on criminal court proceedings. Due to a lack of conviction or strong evidence, many horrific criminals are found guilty or let off the hook based on even the most remote suspicion. As a result, traditional legal actions typically result in the loss of the vast majority of public resources and the exoneration of the accused on the basis of presumed innocence. Today's crimes are technologically perpetuated, and crimes based on science are developing that can only be solved with forensic technology.

Our ancestors were alive, they appear to have used scientific methods in some degree when conducting criminal investigations. *Kautilya's* "*Arthashastra*" [1] contains a comprehensive reference on this subject and was written approximately 2300 years ago. Since the 1930s, law enforcement, courts, and several anti-crime commissions throughout the world have all agreed to rely more on science to fight crime and enforce the law. The studies of the "*President's Crime Commission Task Force reports on Police and Science and Technology*" [2], which were published in the 1960s, called for a greater use of scientific evidence in criminal investigations and legal proceedings. The use of digital technology in criminal cases has resulted in

significant advancements in the decision-making process. Forensic Science Laboratories use cutting-edge scientific techniques to assess and dissect physical evidence. The increasing use of forensic evidence in court may be attributed to a variety of factors, including the spate of fugitive crime cases in India where many suspects frequently dropped their charges due to a lack of scientific support.

The Information Technology Act [3] (hereinafter referred to as IT act) has recognized and defined electronic records as "*data, record or data generated, image or sound stored, received or sent in an electronic form or micro film or computer-generated micro fiche.*" The Indian Evidence Act allows the use of electronic records as evidence [4]. This paper offers solutions to a number of significant issues by drawing on two closely related legal traditions, including:

i. Is digital evidence considered to be substantial or corroborated evidence in legal proceedings?
ii. In what circumstances did the court take into account the digital-legal evidence?
iii. Has exoneration been confirmed after the acceptance of digital evidence result in a verdict?

Regression analyses demonstrated that digital evidence played a consistent and robust role in case-processing decisions. This paper examined the role and impact of digital evidence on case-processing outcomes by comparing two famous case laws related to hit and run, namely, *Vismay Amitbhai Shah v. State of Gujarat* [5] and *Salman Salim Khan v. State of Maharashtra* [6]. Wherein one case digital evidence paved the way of the wrongdoer to imprisonment and while in other lack of digital evidence set him free.

2 NCRB Report

The eighth place among the causes of death on a global scale is occupied by traffic accidents. It is concerning how frequently accidental deaths occur in India. According to the National Crime Records Bureau gathered information on "Traffic Accidents" in 2021 [7], traffic accidents resulted in 373,884 injuries and 173,860 fatalities. In India, traffic accidents cost 1.55 lakhs lives in 2021; the average number of deaths are 18 per hour, or 426 per day [8]. According to the 2019 World Bank report, "*Guide for Road Safety Opportunities and Challenges: Low- and Middle-Income Countries Country Profiles*," India accounts for 450,000 accidents per year that claim the lives of 150,000 people which is 11% of all fatal traffic accident deaths worldwide despite owning only 1% of all vehicles, it the highest percentage in the world, there are 53 traffic accidents nationwide every hour, resulting in one fatality every four minutes [9]. Fewer than 1% of these cases result in a conviction, while other cases build up over years, there can be n no. of reasons for this. It takes two to three years for the cases involving fatal accidents to be brought before the courts. The police are also lackadaisical with filing their report; it takes between three and six months to file an accusation [10]. More than 80% of highway accident cases result in acquittals.

Obtaining a conviction in the 20% that remain is also a mammoth task since our judicial system is overburdened with fewer hands to aid it [11]. One of the main causes of the delay in accident cases is the lack of eyewitness testimony for a variety of reasons, including the fact that people seldom show up for court appearances out of fear of a drawn-out trial. It is pertinent to note that, NCRB or the World Bank has not incorporated in their statistics, the aspect, where any sort of digital and/or forensic evidence was found in the crime scene and whether further investigation by the police was done in the line of digital or forensic investigation and if yes, does it have given better result than relying just upon eyewitness testimony. It is also interesting to note that the inclusion of forensic evidence in criminal investigation and trial for both lawyers and police is not something common and this lack of connection between these two subjects is also a reason for low conviction and due to poor investigation.

3 CCTV: Electronic Witness

Human witnesses can change from their stand before police and magistrate respectively but digital witness stand by the same assertive testimony as given in the first place. The prevalence of video surveillance cameras as a deterrent to crime is becoming more and more common in society. For those who view the increased use of CCTV cameras as invasive and undermining privacy, this may be reason for alarm. Particularly in metropolitan areas, there has been a rise in the usage of CCTV cameras. The CCTV camera can and does record everything in between, even though it primarily records crimes as they are being committed or in the moments before or after such an event. Whatever one may think about the usage of CCTV cameras, the reality is that they have innumerable benefits for determining the conditions. There may have been a CCTV camera around the accident site that recorded what truly transpired in the moments before and during the collision. Additionally, there may be traffic control cameras in place that will perform the same function as above if the collision happened close to a junction. Recently, in a car accident occurred due to over-speeding the former Tata Sons chairman, Cyrus Mistry, died. According to the CCTV footage, as obtained by The Palghar police in Maharashtra of the Mercedes car in which he was traveling from Ahmedabad to Mumbai. A 20 km journey took only 9 min, according to video surveillance photographs, indicating that the luxury vehicle was traveling at a speed of 180–190 km per hour [12].

4 CCTV as Electronic Evidence

Any admission of guilt must be supported by evidence that establishes the guilt of the accused beyond a reasonable doubt. The current status of the CCTV footage can be explained by one of two separate scenarios:

1. When video surveillance recordings are the only evidence available, can they be used as foundational evidence to establish the accuser's guilt at the accuser's request?
2. What will happen to the CCTV video, if the recording and eyewitness testimony do not corroborate each other?

It will be sufficient to demonstrate the *actus-reus* at the instance of the accused in both instances, if the CCTV video is appropriate and clear and the origin of the CCTV is proven beyond a reasonable doubt. Also on a worldwide scale, the value and relevance of using CCTV as evidence in Ld. court have been noted. In "*Gubinas and Radavicius v. HM Advocate, the High Court in Aberdeen*," [13] it has been noted that, even if every witness claims one thing while the video surveillance sequence reveals something else, the electronic evidence will be cited rather than the eyewitness testimony. The Court's comment demonstrates that the content of the video surveillance sequence is deemed sufficient to establish that a crime was committed and identify the offender. In the case of *Tomaso Bruno and Associates, v State of U.P.* [14], a murder in Varanasi was committed and two other Italian citizens were found guilty of the crime. The Supreme Court has noted that video surveillance photographs are a potent piece of evidence that might have been used to prove the crime, and that the refusal of the accusation to provide the video surveillance footage casts serious doubt on their case.

5 Procedure for Admissibility of CCTV Footage as Evidence

Primary evidence is considered to be CCTV video that has been created automatically and stored on a CD, DVD, hard disk, flash memory, or USB key without the assistance of a human, that DVR will be regarded as primary evidence under § 62 of the IEA and it will not be necessary to adhere to the specifics of § 65B(4) of the IEA because the original document is being examined by the court. However, it is impossible to present the complete system to the Court if there are several cameras placed and the data is digitally stored on sizable servers. In such a circumstance, the only alternative to provide it is necessary to transfer the data from the enormous server to a CD or USB for the court, which is not feasible without human interaction and increases the possibility that the data may be falsified even somewhat. The duplicated or retransmitted evidence will be viewed as supporting evidence in such a case. If any secondary electronic evidence, such as a USB or CD, is presented as evidence, it must strictly adhere to the requirements of § 65B(4) of the Indian Evidence Law, which calls for the acquisition of a certificate from the owner of the surveillance camera attesting that the material taken from its DVR has not been altered. You must get a certificate from the server's administrator. The main goal of the certificate is to demonstrate the proper operation of the computer from which the electronic record is generated in front of the court for examination in order to show that the

content has not been altered or falsified as a result of a computer malfunction. The certification is not necessary to demonstrate the veracity of the information contained in the computer-generated dossier. The main goal of § 65B is to accept secondary evidence as evidence. According to a panel of three judges in the "*Arjun Panditrao Khotkar case v. Kailash Kushanrao Gorantyal*" [15], the certification required by § 65B(4) of IEA is a pre-requisite for the acceptance of evidence presented through an electronic record. The Court has further emphasized that the certificate required by § 64B(4) IEA is not necessary, if the original document is submitted to the Court for review.

6 § 304 of IPC

According to the gravity and seriousness of the offence, culpable homicide not amounting to murder is divided into two categories under § 304 of IPC, in order to determine the appropriate punishment. § 304 of IPC does not create new offences but instead establishes a range of possible sentences depending on the gravity and nature of the offence, namely,

(a) When the conduct would have constituted a murder, it would not have been because it falls within one of the exceptions to the § 300 of IPC. Alternatively, the purpose serves as the foundation for determining responsibility under the provisions of Part I of § 300 of IPC, "*when these bodily injuries are caused with the **intent** to cause death or with the intent to inflict such bodily injury that is likely to cause death.*" The provisions of part I provide for either perpetual imprisonment or temporary imprisonment for one or the other description for a period of up to ten years and fine.
(b) The foundation of the punishment in Part II of sec. 300 of IPC is **knowledge**. It applies to anybody who dies after carrying out an act knowing that it would cause death, as specified in cl. (3) of § 299 of the IPC, as well as to anyone, who is not covered by cl. 4 of § 300 of IPC but is covered by one or more exceptions to § 300 of IPC. The second part of this § specifies a punishment that might last up to 10 years or a fine.

7 § 304A of IPC

Initially, the penal law did not foresee punishment in cases when someone would negligently cause the death of another person, and responsibility for having caused the death only applied in cases of murder and culpable homicide, which do not constitute murder. The IPC was amended by adding § 304A of IPC in 1870 through The IPC Amendment No. 27 of 1870, which covers cases in which someone kills another person due to reckless or negligent behavior without intending to do so and

without knowing that doing so would result in death. The § 304A of IPC addresses homicide through careless and momentary acts.

The two principles of criminal liability in cases of negligence [16] are

1. The circumstances must be such that the accused's negligence went beyond a straightforward discussion of indemnification between the parties and demonstrated such disregard for the lives and safety of others that it was elevated to the level of an offence against the State and behavior subject to punishment.
2. The phrase "imprudence" is frequently used to describe a lack of concern for a risk, even though the accused may have known about the risk and intended to avoid it while demonstrating enough negligence to warrant a penalty for the methods used to do so.

Essential Ingredients According to IPC § 304A, the following requirements must be met in order to prosecute a murder case:

(1) The victim must die;
(2) The act done by the accused must have caused this death; and
(3) That the accused's alleged act was careless or episodic and did not amount to a culpable homicide.

Additionally, it has been decided that it must be the causa causans, meaning that the immediate or operational reason is insufficient to qualify as the causa sine qua non, or a necessary or unavoidable cause [17].

8 Rash and Negligent Act

The act of taking a chance that unfavorable consequences would follow but yet hoping that they won't materialize is known as Rashness. Contrarily, negligence is the failure to fulfill a legal responsibility [18]. Criminal negligence is serious and punishable, as is negligence or the failure to take reasonable and necessary precautions to prevent harm from occurring to anyone, whether it be the general public or a specific individual who, given the circumstances surrounding the accusation, was required to be adopted. In the *State of Karnataka v. Sharanappa Basanagouda Aregoudar* [19] four people had perished in an accident determined that, given the gravity of the case, Balakrishnan J, speaking on behalf of the Court expressed that:

> The courts need to be on guard for the accused if it is determined that their behavior was reckless and negligent so that they don't very easily evade the law. The punishment imposed by the courts must deter potential offenders and be proportionate to the seriousness of the offense. Certainly, judges have the discretionary power to weigh a wide range of potentially relevant facts when determining the appropriateness of a sentence, but this power must be exercised with due consideration for the interests of the society as a whole. It is unnecessary to add that the criminal justice system's conviction of offenders is perhaps its most visible face.

The difference between IPC § 304A and § 304 is that the former completely excludes the culpable homicide, but the latter, whether in Part I or Part II, asserts that such homicide does not constitute murder. In other words, the § 304 states that even though the conduct is not murder, it must still be a culpable homicide, whereas the § 304A states that anything that is not a culpable homicide and is committed in a certain way as specified in the § is punishable in accordance with the § 304A of the IPC.

9 Salman Salim Khan v. State of Maharashtra [6]

9.1 The Case of the Prosecution

On the night of 27th September 2002 at around 9:30 pm, Salman Khan was accompanied by his friend Kamaal Khan, his bodyguard Ravindra Patil and Sohaib Khan and his bodyguard Sohail Khan and his bodyguard to the Rain Bar and allegedly consumed alcohol. Thereafter around 1:30 am, Salman Khan, who was accompanied by his friend Kamaal Khan and bodyguard Ravindra Patil to J.W. Marriot hotel, from where Salman Khan was on wheels. At around 2:15 am they left J.W. Marriot hotel for Galaxy Apartment. At around 2:45 am, Salman Khan was on the influence of alcohol, when he was on wheels and then dashed the huge white Toyota land cruiser on American Express Bakery heading from St. Andrews Road, killing one person and injured four.

9.2 But According to Salman Khan's Version

On the night of 27th September 2002 at around 9:30 pm, Salman Khan was accompanied by his friend Kamaal Khan, his bodyguard Ravindra Patil his driver Altaf who was driving his car, and Sohaib Khan and his bodyguard went to Rain Bar. Thereafter, Altaf drove Salman Khan, his friend Kamaal Khan, his bodyguard Ravindra Patil to J.W. Marriot hotel. And there because Altaf was feeling ill, Salman called driver Ashok Singh and around 2:15 am, they left J.W. Marriot hotel for Galaxy hospital. At around 2:45 am, during their way, from Manuel Gonsalves Rd, the left-frontside tire burst while negotiating a right turn. Hence, the car breaks into American Express Bakery and because the left front side was badly damaged, Salman Khan had to come outside from the driver's gate.

Initially charges were framed under S. 304A for negligent driving and proceedings was initiated before Metropolitan Magistrate. But when the trial commenced and witnesses including police eyewitness were examined, charges were framed under S. 304, Part II by Metropolitan Court. But because the prosecution failed to establish:

1. Any sort of digital or forensic evidence in this case.
2. The papers that vanished: Only nine original copies of the 63 witness declarations were made available to the court as of July 25, 2014. Following this audience, the accusation repeatedly requested adjournments while taking its time to locate the materials. The allegation presented all but one of the case's "vanished" papers to the sessions court on September 12. According to Special Prosecutor Pradeep Gharat, the journals were discovered in the office of the Administrative officer for the position of Bandra Police [20]. Gharat stated during the submission of papers that the only missing document was the declaration of one of the witnesses, which had already been filed.
3. Enchantment of blood: Another key witness in the case in December 2014 was medical expert witness Dattaray Bhalshankar, a chemical analyzer who testified in court that Khan's pre-incident blood alcohol content test came back positive for 62 mg of alcohol. It was said that this exceeded the Motor Vehicle Act's 30 mg per 100 ml blood limit by more than twice. However, during his counter-interrogation, the witness was unable to recall how he had used the sample method of analysis. Additionally, the defense stated that he was not an expert and had not taken the necessary precautions.
4. Was the laboratory up to date? The State of Kalina's medical-legal laboratory, where Khan's blood samples were sent, does not have the necessary authorization. Would that involve proving it and chemically analyzing blood emulsions? Typically, even if credit is advised and preferred, the absence of credit hasn't prevented people from accepting or appreciating its results, unless the chain of custody, manipulation, packaging, and delivery of the sample was deemed inappropriate. In the case of Khan, the defense attorney Shrikant Shivade stated that the laboratory was not accredited and maintained that the sample had not been transferred from the hospital to the laboratory with the proper manipulation and ingredients. However, the judge of the accelerated sessions had noted in her judgement of criminal responsibility against the actor Shiney Ahuja in 2011 that "*the Kalina laboratory does not have accreditation even though the process of obtaining accreditation is ongoing*" [21]. The defense further argued that the laboratory must be accredited by the National Advisory Council for Testing and Analysis Laboratories (NABL). The accreditation certifies that the laboratory complies with international standards for competence and quality. The incident was resolved by the corps and bodyguard R. Patil.
5. Even in death, a testifier is staunch in his testimony: Salman Khan's bodyguard, former police agent Ravindra Patil, was instrumental in getting the actor convicted in the 2002 fire escape case. After the accident, Patil dialed 911 and is now the one filing charges against the actor. It played a crucial role. He didn't just make the accusation; he also testified against Khan before the lower court. Khan was drunk at the time of the collision, according to Patil's testimony in court. The lead investigator, retired ACP Kishan Sehgal, stated that he had claimed to have asked the actor to drive more slowly. However, the actor had not complied. "We have a number of witnesses to tell us what happened after the collision in this case. But we were unaware of the sequence of events before to the disaster. Patil

was in the car with Khan after they left the hotel, and she helped us tie everything together, according to Shengal.

6. The man: Ravindra Patil, a police officer, was a member of the 1998 gang. The dying days of Patil were spent in the shadow of his illness and his hopelessness. Following his testimony before the court, Patil abruptly vanished without ever being given an explanation. The police detained him in March 2006 for failing to show up for work, and later, in November, he was relieved of his duties. After learning of his tuberculosis diagnosis, his family abandoned him since his health had deteriorated over the previous year [22]. In 2007, a friend found her in the streets near Sewri and brought her to the hospital. He passed away on October 3, 2007. Before his passing, Patil told a number of people that he had never changed his account of the incident and had told the police and the court the whole truth. 'Salman Khan was driving,' said Kamaal Khan: Singer, Three or four days after the 2002 event, Kamaal Khan made a statement that was captured on video in Marathi in which he revealed that Salman Khan was the one who had been in charge of the erratic night. At the time of the decision against Salman in May 2015, Kamaal Khan was ordered to be in London. According to unconfirmed evidence, he could even reside in Zurich, Switzerland [23]." People were sleeping on the trottoir, Salman and Kamaal Khan left the area, according to agent Patil. Salman was so distraught that he fell twice and then absconded the place, according to one of the injured workers, who made a statement after the tragedy. This statement did not affect Salman Khan and Kamaal Khan's relationship because the latter continued to sing for the superstar Salman Khan both after the 2002 statement and even after 2007, when Kamaal had "faded away" from Mumbai and India, as can be seen in the filmography of Kamaal Khan. In fact, Kamaal appears to have sung in just one movie without Salman.

10 Vismay Amitbhai Shah v. State of Gujarat [5]

On the night of February 25, 2013, Vismay Amitbhai Shah drove a BMW from Pakwan Cross Road to Premchand Nagar Road, close to Judges' Bungalows, a distance of approximately 1.5 km, at an excessive speed of more than 110 km per hour, imprudently, and carelessly. He collided with a motorcycle, sending the driver and passenger flying 15 feet into the air. He then struck his vehicle, causing the tree to bend and causing significant damage to the vehicle as well. The victim died instantly, and after two days the passenger succumbed to their injuries. There have also been allegations that he left the scene of the collision without stopping, trying to help the injured, intimidating the police, or stopping to help the injured. Closed-circuit television: The court heavily relied upon a silent and digital witness, who can never go off its statement. There were several cameras, but the main camera was Lakshmi Gathiya Rath's camera no. 03, which recorded the whole event and helped in noting the vehicle's speed.

10.1 Speed-Test Validating Technique by FSL, Gandhinagar [32]

Now, the pertinent question which is raised here, is how can a CCTV camera calculate the speed of cars or motorcycles? It can be done by calculating the time it took the vehicle to go between two spots in the video, and if one knows the physical distance between them. As a result, the vehicle travels X meters in Y seconds, which may then be converted to kilometers per hour (km/h). In connection with the incidence a sealed parcel was given to the Directorate of Forensic Science, Gandhinagar by the Police inspector in due compliance with § 65B of the evidence act. The said sealed parcel contained a CD-R which whose maker was FRONtECH and its capacity was 700 MB. The CD-R containing the video from 00-09-56 am to 00-30-59 am (20:24 min) of 25th February 2013 of camera no. 03 of Lakshmi Gathiya Rath. The first thing which was checked by the FSL was whether there was any editing/alteration/modification in the said CD-R or not but it was found that there were no editing/alteration/modification in the CD-R file and with proper hash value. A credibility of a digital evidence is through its hash value, if its hash value is same throughout the procedure then it shall be well appreciated by the court but if any sort of change in the value is found then there is a possibility of human tampering with it. MIDAS system and Cognitech software whose build was: 6.0105 was used by FSL team. Their technique was to examine the video, frame by frame. Then the Meta Data of the file was examined and by applying mathematics as explained above, the speed of the car was established. The same technique was used in Vismay Shah's case, details:

10.2 Timeline Analysis of the Video

From the moment the car arrived till it exited a total distance of 15 m was captured in the impugned camera and they were marked as Mark-1 and Mark-2.

Distance between Mark-1 and Mark-2:
d = 15 m
> Frame number when suspect car at Mark-1 = 10
> Frame number when suspect car at Mark-2 = 22
➤ Number of frames between Mark-1 and Mark-2 = 22–10 = > 12 frames
Frame per second rate of the Video = 25 fps
Time for suspect car to reach from Mark-1 to Mark-2
t = (12 × 1)/25 = 0.48 s
Velocity of suspect car from Mark-1 to Mark-2
v = Distance/Time = 15/0.48
≈ 31.25 m/s
(31.25 × 3600)/1000 km/h
≈ 112 km/h

Hence, the FSL has determined a specific speed of 112 kmp.

As per the procedure, the investigating agencies have demanded a speed report from BMW dealership, which should state the speed of the car after reviewing the damage inflicted upon it. The BMW dealership confirmed that the speed of the vehicle being driven by Vismay was approximately 110 kmph. To further validate the method applied to establish the speed of the car, on 08th April 2013, the Director of Forensic Science, FSL, Mr. Hitesh Trivedi sir and his team went to the crime scene with the Investigating Officer Manoj Sharma, Police Inspector, Vastrapur. There they asked the police vehicle gypsy to cover a distance of approximately 1.5 km, crossing the same cam-03 of Lakshmi Gathiya Rath, three times but with different speeds, first with the speed of 50 kmph then with the speed of 60 kmph and then with a speed of 70 kmph.

From the moment the car arrived till it exited a total distance of 15 m was captured in the impugned camera and they were marked as Mark-1 and Mark-2.

Date and Time: 08.04.2013 from 12:44:54 to 13:00:59.
Distance between Mark-1 and Mark-2:
$d = 15$ m
➤ Number of frames between Mark-1 and Mark-2 = 27 frames.
Frame per second rate of the Video = 25 fps
Time for police vehicle gypsy to reach from Mark-1 to Mark-2
$t = (27 \times 1)/25 = 1.08$ s
Velocity of suspect car from Mark-1 to Mark-2
v = Distance/Time = 15/1.08
≈ 13.88 m/s
$(13.88 \times 3600)/1000$ km/h
≈ 50 km/h

After the whole activity was performed by the police vehicle gypsy on the field. The FSL team has then and there, at the same time, took the routine backup in their pen drive. The pen drive was then brought and transferred to the MIDAS system, which has inbuilt Cognitech software, and a hash value was created then the frames were made. By applying the same technique, the speed of the car, when it was at 60 kmph and 70 kmph respectively, was calculated and the results also became the same. Hence, this was the validation of the technique done by the FSL which has given a significant contribution toward the decision-making.

10.3 Judgment

It was established during the subsequent examination that the driver was aware of the announcement of the police commissioner of Ahmedabad, regarding the requirement to drive a vehicle within a specific speed limit and that he was fully aware that there is significant traffic in the area, even at night. The complainant and other eyewitnesses to the event determined that the vehicle was traveling at an excessive speed. The

FSL's observation even shows that no brake has been affected on either tire. An accident was caused because of the driver's lapse in concentration at the inter§ of the three routes (T-junction) close to Laxmi Ganthiya Rath. The BMW car swerved to the left of the motorcycle and came to a stop after colliding with the tree. Even the RTO estimated that the car's speed was higher than the Notification of the Police Commissioner and forensic report, which, while being hotly contested, showed that the speed was 112 km/h. In these circumstances, when the accident occurred, the individual decided to flee and clearly reneged on taking the necessary actions for the medical treatment of the injured or intimidating the police. The police had filed the F.I.R. in accordance with IPC § 279, 338, and 304A as well as for violations of §s 177, 184, and 134(1)(b) of the Motor Vehicles Act. But on July 13, 2015, the ld. judge of the second additional session in Ahmedabad (rural) found him guilty of the offences punishable under § 304 (II), 279, and 427 of the IPC as well as § 177 and 184 read together with § 134(1)(b) of the Motor Vehicles Act, and he was sentenced to five years in rigorous prison with fine. And in the appeal before the Hon'ble High Court of Gujarat, the conviction was upheld.

11 Conclusion

This research paper entails that judiciary must create its own paradigms. Every case involves some form of evidence in electronic form, thus a judge must be ready to wear technocratic hat every theme such a comes—rather than disregard the e-evidence. Applying tech to achieve a desired result is one aspect, the other is to give legal value to e-evidence. One may lose relevant evidence not because of "lack of technology" but because of "lack of appreciation of technology." So when e-evidences are being produced before the courts, then instead of rejecting the same, the judges must ask—Whether the investigators/litigants took care in gathering the evidence? Could the evidence be faked? In Mohammed Ajmal Amir Kasab v. State of Maharashtra (2012) it was laid that "one must appreciate the courts which relied on electronic evidences, whether in the form of CCTV footage, mobile devices, memory cards, data storage devices, intercepted communications over VolP, IP Addresses, etc. while delivering the judgement." Due to lack of infrastructural resources like computers, mobiles, internet connectivity in various parts of the country, there have been arguments raised that such an Act will divide the country into "digital haves" and "digital have-nots." However, such arguments are not well founded, as the digital core of the country is expanding every day, with newer people being added to the digital framework. In light of COVID one must appreciate, that all the services were being transferred to the general public digitally, from medical to school, to shopping and payments, to transfer of benefits through PDS and Aadhar services. The Courts were also functioning to protect and safeguard the citizen's right to privacy and personal liberty, during the times of COVID.

§ 304 part (II) of IPC is the least used § while charging a person. According to the statistics given by Delhi police, just three incidents under the provisions of § 304 Part

(II) were reported out of the 3,584 cases that were recorded in 2014. 1,277 cases were reported between January 1 and May 15, 2015, and just one of those cases resulted in the application of § 304 Part (II). According to police statistics, Gurgaon had 127 fatal accidents and 164 non-fatal accidents in 2014, however none of them were covered under § 304 (II) of IPC. This § was not used once during the 53 fatal accidents and 75 non-fatal occurrences that occurred in Gurgaon between January 1 and May 15, 2015. In Noida, there are 835 cases that have been recorded, but no complaints have been made in accordance with § 304(II) of IPC [24]. Likewise, in the instant case laws as discussed above also both the accused were charged under § 304A which grants lesser punishment but the trial pronounced them sentence under § 304 part (II). In the appeal before the high court, Salman khan got acquittal but Vismay Shah was incarcerated, the clear and unequivocal reason is the strong, scientific, and responsible investigation by the investigating authorities and their heavy reliance on the digital evidence placed on record. However, in case of Salman Khan, the prosecution was failed to place on record, single admissible forensic evidence, which may have changed the verdict. Hence, it won't be incorrect to say that digital Evidence had helped and will help in framing of the charge from § 304A to 304 Part (II) of IPC.

Since evidence is a vital part of all investigations, it is essential that investigators are aware of the numerous legal definitions of evidence, the different types of evidence, and how evidence is assessed and valued by the court. The fundamental building elements of the inquiry are the evidence, which must be accepted, obtained, documented, safe-guarded, vetted, analyzed, shared, and presented in a form that the court would find acceptable if it were the foundation for a ruling. Evidence will remain a crucial aspect to take into account while creating the appropriate research techniques as we proceed through this book. During an issue hearing, the court has the power to accept or reject any evidence that is submitted. To determine whether it will be accepted or rejected, all evidence is evaluated. Eyewitness reports of what happened to a suspect as well as forensic evidence found at the crime scene are examples of the types of evidence that may be accepted or excluded. The exclusionary defense has the potential to invalidate any piece of evidence, thus investigators should be mindful of this possibility. Depending on a set of guidelines and the kind of evidence that was submitted, the court will decide whether certain evidence must be dismissed if there is a disagreement. If a witness is called to testify, the court will first decide if they are competent and reliable to do so. The general rule is that a credible witness will most likely be a competent witness (R v Schell, 2004). Competent means that you are legally authorized to testify, whereas constrainable means that you are legally qualified to testify. In this book's part on witness management, a variety of criteria that will be covered in more detail will both affect a witness' competency and objectionability. The court will hear a witness' testimony if one is deemed to be both competent and unreliable, determine the witness' credibility afterward, and then weigh the relevance of the facts given. If it is established that a witness is unreliable or inconsistent, their evidence won't be admitted in court. When deciding whether to accept material evidence into evidence, the court considers a number of considerations in the same manner that it does witness testimony. The following are some

of these elements, although we will go into more detail in our chapter on handling crime scenes:

(a) If the evidence was lawfully collected;
(b) How it was gathered, tagged, and stored, and;
(c) If it was tainted in any way, as well as;
(d) Whether the evidence's continuity chain was correctly maintained, are all important considerations;
(e) The exclusion of evidence at trial may occur if one of these criteria is not met.

Additionally, the accused's violations of the Charter of Rights and Freedoms [25] may result in evidence being gathered, which the court may altogether exclude. There were several instances in which these rights and liberties were not upheld:

(a) Inaccurate disclosure of all evidence prior to the trial will allow the accuser to fully refute the allegations.
(b) Failure to provide the necessary warning and care required by § 10 of the Charter when obtaining a suspect's statement.
(c) Improper or unlawful searching of a person or of a person's property.
(d) Denial of the right to consult with an attorney after being arrested or detained.

An investigator can prevent errors that can lead to the removal of evidence from a trial by being aware of the standards for collecting, managing, and conserving evidence. An investigator may be able to prevent the entire exclusion of important pieces of evidence from use in the trial due to a breach of the Charter by adhering to the standards for defining violations of the Charter. Law enforcement agencies now utilize computers to both commit and prevent crime as a result of the ongoing growth of the discipline of digital evidence forensic science. Information that has been preserved or transferred in binary format and is admissible as evidence in a court of law is known as digital evidence. A portable phone and a computer's hard disk are two more locations where it could be located. Electronic crime, or "e-crime," including child pornography and credit card fraud, is frequently associated with digital proof. Today, however, digital evidence is used in the prosecution of all offenses, not simply those involving computers. For instance, the emails and phone records of the suspects might provide vital information about their motive, location, and connections to other suspects, as well as their whereabouts at the time of the crime. For instance, a disquette in 1995 helped police track down the BTK serial murderer, who had been evading capture since 1974 and killed at least 10 deaths. The police were unable to apprehend him for thirty years. In the parking lot of a neighboring Home Depot in January 2005, Rader hid a package for Wichita's KAKE-TV station inside a cereal box he had parked behind a truck. The owner, nevertheless, saw it as a command and responded accordingly. Rader later got in touch with the station to ask if they had gotten the gift. After he was found, the police were able to see security camera footage that showed a person driving a black Jeep Cherokee dumping the item.

Data that has been preserved or transferred in binary format is referred to as digital evidence and can be presented as proof in a legal proceeding. It may also be

found on a portable phone and a computer's hard disk in addition to other places. Digital evidence is frequently connected to electronic crime, or e-crime, such child pornography and credit card fraud. However, today, all types of crimes are being prosecuted utilizing digital evidence, not only electronic crimes. Emails or phone records, for instance, may include vital information about the suspects' motive, location at the moment of the crime, and connections to other suspects [26]. Law enforcement agencies have included the acquisition and processing of electronic information, also known as criminalistic information, into their infrastructure in order to combat cybercrime and collect digital evidence pertinent to all crimes. Law enforcement agencies must train their staff to obtain digital evidence and keep up of the swift development of technology, such as computer operating systems. Our nation's criminal justice system is at a crossroads because even horrible offenders regularly evade the reach of the law, and dependable, competent, and trustworthy witnesses to crimes seldom come forward to testify in court. Due to intimidation, fear, and a number of other causes, even the accusation's trustworthy witnesses become hostile. As a result, the research organization must seek out extra strategies to raise the caliber of the investigation, which can only be done by compiling scientific evidence. In the era of science, we need to have solid legal foundations in both science and law. People today feel that new and innovative approaches must replace long-standing conventions and guiding ideas if we are to rescue our criminal justice system. Due to the emergence of new types of crimes and the complexity of those crimes, which make conventional methods and equipment obsolete, forensic science has to be strengthened for crime detection. Oral testimony is affected by the ability to see, to be humbled, to be swayed by other pressures, to forget, etc., while medical evidence is not affected by these same things. These scientific documents must be able to be handled and understood by the legal system. It would be advantageous for judges to often engage with scientists and engineers since this would increase their understanding of how to manage scientific evidence and successfully handle criminal cases based on scientific evidence. However, we highlight the need to encourage scientific evidence as a means of detecting and establishing crimes above and above other types of evidence rather than assuming that it will always be the most trustworthy. Ratio and the recent conclusions of the Court Apex in the *Dharam Deo Yadav v. State of Uttar Pradesh* [27] case call for a reference to this phase, where the crime scene must be handled accurately and scientifically. In criminal prosecutions, especially those based on circumstantial evidence, the forensic profession is extremely important. The key components of the crime could be established, the suspect could be located, and the accused's guilt or innocence could be established. Searching thoroughly for any evidence that could be used as evidence in the case is one of the investigator's main duties while on the site of the crime. The investigator may be shielded from any material evidence contamination that may emerge at the crime scene throughout the gathering, packing, and shipping of evidence. The appropriate measures must be taken to protect the evidence from tampering, contamination, and damage while still preserving it. The corpus of scientific data includes both soft and hard sciences, including economics, psychology, and sociology, as well as the hard sciences of physics, chemistry, mathematics, and biology. The opinions are obtained

from people with technical, scientific, or other information whose knowledge, skills, experience, education, training, or other qualifications would be able to help the court comprehend the evidence or identify the causal component. When the court is compelled to evaluate circumstantial evidence, scientific and technological evidence usually plays a crucial role. The nation's criminal justice system is frequently at a crossroads because even horrible offenders routinely evade the reach of the law, and competent eyewitnesses to crimes who have gained the public's confidence and are trustworthy witnesses seldom appear in court. Intimidation, fear, and a number of other circumstances cause even the accusation's reliable witnesses to become hostile. The involvement of forensic science is vital in these circumstances since circumstantial evidence is all that is available. She can support the establishment of the crime's components, help locate the offender, and help evaluate if the accusation is true or not. Searching thoroughly for any prospective evidence that could be useful in establishing the crime is one of the investigator's key duties while on the site of the crime. In order to improve the quality of the research, the organization conducting it must thus seek for additional strategies. This can only be done by assembling scientific evidence. We must lay down solid legal foundations in both science and law in the scientific age. With the implementation of the IT Act of 202 and the Indian Evidence Act's allowance of digital proof as credible evidence, the Indian legislature does not short for paper. Due to the emergence of new types of crimes and their increasing sophistication, which makes existing techniques and instruments obsolete, there is a need to strengthen digital evidence for crime detection. Traditions and guiding concepts from the past must be replaced with fresh and innovative approaches. Digital evidence is not susceptible to the defects that might affect spoken testimony, such as the observer's capacity, outside influences, amnesia, etc. As was plainly stated above, Vismay Shah received a prison term whereas Salman Khan was declared innocent due to a lack of digital or reliable forensic evidence. The FSL in Gandhinagar uses a relatively straightforward method for confirming speed tests with CCTV that involves performing basic time and distance calculations. But FSL, Gandhinagar deserves praise for using this straightforward maths in this situation. It brings up a number of fresh opportunities for the use of CCTV cameras in the area of digital evidence, with proving speed being one of them. The constant discussions between judges and scientists, engineers, and other professionals would be helpful in elucidating how to handle scientific evidence and successfully manage criminal cases supported by scientific evidence. It is crucial to promote scientific evidence as an extra tool for detecting and proving crimes above and beyond other types of evidence since it is possible that scientific evidence may not always serve as the only sign of guilt, which is why it may be incorrect to presume.

"*No comprehensive understanding of the cosmos is given to us by science. Instead, it serves as a means of refining and developing theoretical accounts of reality that are then subjected to a more thorough examination*" [28]. Science and technological developments have facilitated new discoveries and innovations while also simplifying research procedures. Both the items recovered from the crime scene and the digital information stored on technological devices are useful in solving crimes. The examining agencies may find these documents useful. Since it is possible for the

substance of the digital data to be altered, the analyst must carefully and prudently modify, examine, and manipulate the digital evidence. Due to the potential use of phone calls, location monitoring, and other digital data in criminal investigations. The data obtained on social media platforms, in texts, emails, and other important digital data may offer a trail for detectives, assisting in apprehending the offender and proving his or her guilt in court. The substance of electronic evidence is acceptable before courts, but courts must follow certain procedures before recognizing it as admissible due to the heightened risk of tampering and it is thus urged that digital evidence be handled cautiously and rationally position of digital. It is important to consider the evidence used in the charge's framing under IPC §s 304A and 304 Part (II). When charging a person, § 304 part (II) of the IPC is the least frequently invoked. Just three incidences falling under the purview of § 304 Part (II) were reported out of the 3,584 cases that were registered in 2014 [24], according to the information provided by the Delhi police, as was previously stated and reiterated. Between January 1 and May 15, 2015, there were 1,277 recorded cases; however, only one of those incidents led to the application of § 304 Part (II). In 2014, Gurgaon saw 164 non-fatal accidents and 127 fatal accidents, although none of them fell under § 304(II) of the IPC, according to police figures. In the 53 fatal accidents and 75 non-fatal incidents that took place in Gurgaon between January 1 and May 15, 2015, this § was never used. There have been 835 cases reported in Noida, however no complaints have been filed in line with § 304(II) of the IPC. Similar to the prior case laws, both of the accused in the present instance were prosecuted under § 304A, which has a reduced penalty, but the trial determined that they should be sentenced by § 304 part (II). The strong, responsible, and scientific investigation conducted by the investigating authorities and their heaviest reliance on the digital evidence entered into the record are the obvious and undeniable reasons why Vismay Shah was imprisoned in the appeal before the high court while Salman Khan was acquitted. However, the prosecution failed to provide even one piece of acceptable forensic evidence in the Salman Khan case, which may have altered the outcome. Therefore, it is accurate to state that digital evidence assisted in and will continue to assist in the drafting of the charge from § 304A to 304 Part (II) of the IPC.

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Vismay Shah Case Documents

32. To view the official documents and attested copies of the case, visit at https://drive.google.com/drive/folders/1rYL6_DM1ZXrX-tG5I7tYq60UQE2bcd8u?usp=sharing