

Crime Scene Investigation using Advanced Technologies

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Abstract: CSI [Crime scene investigation] is complex act of reconstructing the dynamic scene. CSI is difficult task and need good amount of expertise to be processed further. Recent year have seen an important in the ability of 3D scanning technologists scene large surface area at crime scene that even measure the actual distance between the individual evidence. The application of this new technology are growing everyday. investigations of projectile trajectory in gunshot wounds and three - dimensional examination of bloodstain patterns. From January 2019 to June 2022, every crime scene investigation carried out by the forensic team at the employment of a laser scanner (LS), the use of a camera, a thorough investigative scene, and the gathering of circumstantial evidence with the assistance of the judicial police were the inclusion criteria. Excluded were instances in which the LS was not applied. Five of the 200 CSIs were examined for this investigation. In conclusion, the forensic team was able to crystallise the investigation scene with the use of the LS, demonstrating the utility of this tool.

Keywords: Laser scanner, CSI, Technologies, 3D, Forensic imaging

1. Introduction

CSI is a complex act of reconstruction of crime scene. To investigate entire scene of crime one should hold strong experience in field of forensic medicine or forensic and investigative science. TO understand the nature of the possible crime and search for any trace of victims or any offender, The task of investigator consist of research, finding, collection, identification, Report making. The main objective of forensic medicine is just to perform autopsy and making reports but also to analysis of the evidences that found at the scene of crime.

The crime scene investigation involves imitates from the collection to the documentation to the scene of crime. First and foremost rough sketching involves measurement between evidences. The term 3 dimensional imaging refers to the techniques that can process accurate internal 3D data by obtaining volumetric pixels of the measure target. The 3D image generate heigh resolutions picture of the each and every evidence and help to analysis the scene of crime without any contamination. In the last 15 year have seen an improvement in the technology that. Forensic experts are used to investigate the crime and it also helps in the court room testimony.

The application of this technology are growing everyday, Forensic wound measurement to clinical reports. More examples are: - Traffic accident, Bullet shot, Wound, Internal organ damage. The repeatability of the measurements from the 3D picture and the ability to manipulate the 3D images with software are the advantages of laser scanning over traditional photography. The scanner can distinguish missing pieces from incomplete evidence and is unaffected by ambient lighting. Compared to other 3D imaging technologies like computed tomography (CT) or magnetic resonance imaging (MRI), LSs have the benefit of being easier to use and requiring less training because to their mobility, rapid picture creation, and relatively low equipment and maintenance costs.

The present study reports a case series from different CSI in which 3D imagine used. By using the 3D imagine with the LS helped the investigator from investigation of crime scene to court room testimony even the more difficult cases. The aim of this study to produce the importance and utility of 3D reconstruction of the scene in assessing the cause and manner of the death and all data required in judicial custody.

2. Material and Methods

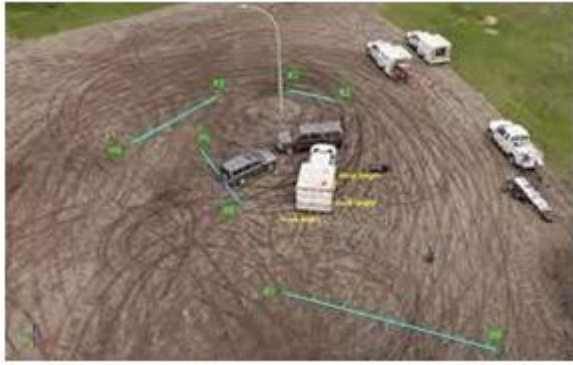
The 3D documentation of the crime scene was helpful for forensic investigators to analysis and reconstruct the scene. The proper reconstruction of scene using digital camera helpful in court of law to consider the evidence.

The 3D recording of crime scenes helps the investigator to analysis each of evidence individually. If in case any evidence left at the scene so it would analysis and collect laterally.

The 3D recording of the crime scene is also crucial element of the documentation so that every evidence location was traced properly.



3D crime scene scammer help to make crime scene 3D used as both indoor and outdoor



Visual of drone scanner by outdoor crime scene.



Laser scanner provide important evidence that was invisible by nacked eyes and beneficial in forensic investigation.

Moreover, there were different type of camera used in scene it depends in the type of scene. Weather it was outdoor or indoor. In many outdoor cases drone camera was preferred so entire scene was noticed and consider entire scene.

3. Conclusion

In CSI forensic examination or medical examination the advanced developed technologies are used to investigate legal case. Many technology like 3D face Recognition using biological evidence and 3D recording of crime scene with the help of 3D camera has help many law enforced agencies to bring the evidence in court of law.