

**A STUDY ON USAGE OF CCTV SURVEILLANCE SYSTEM
WITH SPECIAL REFERENCE TO BUSINESS OUTLETS
IN HYDERABAD**

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Abstract:

The development of business and managing it in this competitive world has become intricate. Any business organization, no matter, large or small faces many problems if they do not have proper monitoring and surveillant system within the organization. Closed Circuit (CC) Cameras structured sophisticatedly to take up this task. They prolong their usefulness of monitoring not only in the business organizations but also in prison cells, Corporate offices, Government buildings, supermarkets, banks, Airports, ATM's, bus stands, hospitals etc. CCTV camera used for Video surveillance, and it helps ensuring that you do not miss anything that is going on its coverage area. It has become a popular way of safeguarding the valuable assets at organizations, keeping an eye on the activities of suspicious people, and recording the important events. Most CCTV systems used for surveillance, which can include security monitoring, spying, or for safety monitoring purposes. If the organization installs CC cameras within their span, it can be a solution to many related and unrelated problems. The present paper has made a research to understand the conceptual working of CC cameras primarily and then to identify their performance in Business/ Commercial Outlets in Hyderabad city with respect to different variables framed for the purpose. The study has revealed that due to usage of CCTV surveillance system, most of the organizations could safeguarded their valuable assets from theft and crime and also it had reduced the burden of vigilance work which has been used for other productive purposes.

KEYWORDS:

CC cameras, Business/Commercial Outlets, Surveillance System, Safety, Crime and Investigations.

BACK GROUND:

The first CCTV system installed by Siemens AG at in Peenemunde, Germany in 1942, for observing the launch of V-2 rockets. The noted German engineer Walter Bruch was responsible for the technological design and installation of the system.

In the U.S. the first commercial closed-circuit television system became available in 1949, called Vericon. Very little known about Vericon except was advertised as not requiring a government permit. CCTV recording systems often used at modern launch sites to record the flight of the rockets, in order to find the possible causes of malfunctions, while larger rockets are often fitted with CCTV allowing pictures of stage separation be transmitted back to earth by radio link.

The history of CCTV in the United States varies from that of the United Kingdom. One of its first appearances was in 1973 in Times Square in New York City. The NYPD installed it in order to deter crime

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that was occurring in the area however, crime rates did not appear to drop much due to the cameras. Nevertheless, during the 1980s video surveillance began to spread across the country specifically targeting public areas. It has seen as a cheaper way to deter crime compared to increasing the size of the police departments. Some businesses as well, especially those that were prone to theft, began to use video surveillance.

During the 1990s digital multiplexing, which allowed for several cameras at once to record, and introduced time lapse and motion only recording, increased the use of CCTV across the country and increased the savings of time and money? From the mid 1990s on, police departments across the country installed an increasing number of cameras in various public spaces including housing projects, schools and public parks departments. Following the September 11 attacks, the use of video surveillance has become a common occurrence in the country to deter future terrorist attacks.

In September 1968, Olean, New York was the first city in the United States to install video cameras along its main business street in an effort to fight crime.

CCTV later became very common in banks and stores to discourage theft, by recording evidence of criminal activity. Their use further popularized the concept. The first place to use CCTV in the United Kingdom was King's Lynn, Norfolk

In recent decades, especially with general crime fears growing in the 1990s and 2000s, public space use of surveillance cameras has taken off, especially in some countries such as the United Kingdom.

OBJECTIVES

1. To understand the working of CC (closed circuit) camera system.
2. To measure the working performance of CC systems in Business/ Commercial outlets productivity.

RESEARCH METHODOLOGY

The present study aims to analyze the working of CC cameras and the performance of CC cameras in Business / commercial outlets productivity, for which a random sample of 100 business outlets been taken in the Hyderabad City. The primary data collected through well-defined questionnaire, Secondary data collected from different magazines, journals and websites. The data analysis for each variable in a questionnaire made with the help of Excel diagrams and tables.

LIMITATIONS

The present study carries over a sample of 100 Commercial Organizations only in Hyderabad, Andhra Pradesh for a period of 3 months during July 2012 to September 2012.

INTRODUCTION:

As the name implies, CLOSED CIRCUIT (CC) CAMERAS is a system in which the circuit is closed and all the elements are directly connected. Directly connected in this context includes systems linked by microwave, infrared beams, etc. Closed Circuit (CC) Cameras have become an important crime prevention and security measure. Cameras collect images, which will transferred to a monitor cording device of some sort, where they are available to be watch, reviewed and / or store the CCTV is a situational measure that enables a locale to be kept under surveillance remotely. The storing of images means that post-incident analysis helpful to facilitate an investigation. However, there are many different types of CCTV systems and they have different capacities to meet a variety of objectives.

The CC Camera

The starting point for any CLOSED CIRCUIT (CC) CAMERAS system must be the camera. The camera creates the picture, transmitted to the control position. Apart from special designs, CLOSED CIRCUIT (CC) CAMERAS are not fitted with a lens. The lens must be provided separately and screw on to the front of the camera. There is a standard screw thread for CLOSED CIRCUIT (CC) CAMERAS, although there are different types of lens.

The Monitor

The picture created by the camera needs to be reproduced the control position. A CLOSED

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CIRCUIT (CC) CAMERAS monitor is virtually the same as a television receiver except that it does not have the tuning circuits.

CC POWER SYSTEMS VARIANTS

The basic CLOSED CIRCUIT (CC) CAMERAS installation shown in diagram where the camera is mains powered, as is the monitor. A coaxial cable carries the video signal from the camera to the monitor. Although simple to install it should be born in mind that the installation must comply with the relevant regulations such as the institute of electrical engineers latest edition.

This arrangement allows for a great deal more flexibility in designating complex systems. When more than one camera is required, then a video switcher must be included. Using the switcher any camera may be select to the screen or it can be set to sequence in turn through all the cameras. Usually each camera is shown may be adjusted by a control knob.

The different types of CC cameras are displayed hereunder:

Figure 1: Different types of CC cameras



SYSTEMS WITH VIDEO RECORDING

The next development of a basic system is to add a video recorder, with this arrangement the pictures shown during play back will be according to the way in which the switch was set up when recording. That is, if it was set to sequence then the same views will be display on the monitor. There is no control over what has to be displayed.

MOVABLE CAMERAS

So far, all the cameras shown are fixed with fixed focal length lenses. In many applications, the area to be covered would need many fixed cameras. The solution to this is to use cameras fixed to a movable platform. This platform can then be control from a remote location. The platform may simply rotate in a horizontal plane and it generally known as a scanner. Alternatively, the platform may be controllable in both horizontal and vertical planes and known as a pan, tilt unit.

Cameras may used to indoors or outdoors. When used outdoor they will always require a protective housing. For indoor use, the environment constraints will dictate whether housing is need or not. Systems may contain a combination of both fixed and movable cameras.

OTHER CONSIDERATIONS

This has been an introduction to some of the fundamentals of CLOSED CIRCUIT CAMERAS. Recent developments have made some very sophisticated systems possible. These include concepts such as multiple recording of many cameras,

- Almost real time pictures over telephone lines;
- True real time color pictures over the ISD telephone line;
- Switching of hundreds, even thousands of cameras from many separate control positions to dozens of monitors;
- Reliable detection of movement by electronic evaluation of the video signal;
- Immediate full color prints in seconds from a camera or recording;
- Manual control has to be replaced by touching screen.

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CCTV commonly used for a various purposes viz.:

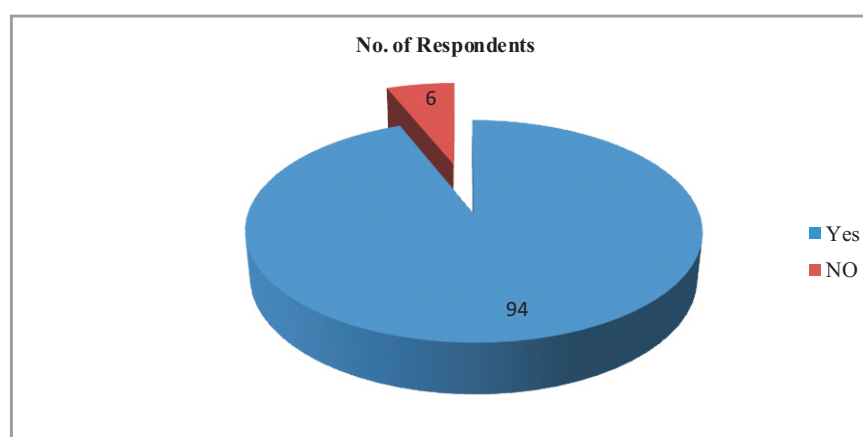
- Maintaining perimeter security medium- to high-secure areas and installations
- Observing behavior of incarcerated inmates and potentially dangerous patients in medical facilities
- Traffic monitoring
- Overseeing locations that would be hazardous to human, for example- highly radioactive or toxic industrial environments
- Building & grounds security
- Obtaining a visual record of activities in situations where it is necessary to maintain proper security or access controls (for ex: Diamond cutting or sorting operation; in Banks, Casinos, Airports).

DATA ANALYSIS:

Table: 1: Usage of Closed Circuit Cameras

Particulars	No. of Respondents	Percentage (%)
Yes	94	94
NO	6	6
TOTAL	100	100

Figure 2: Chart showing the usage of CC cameras in %



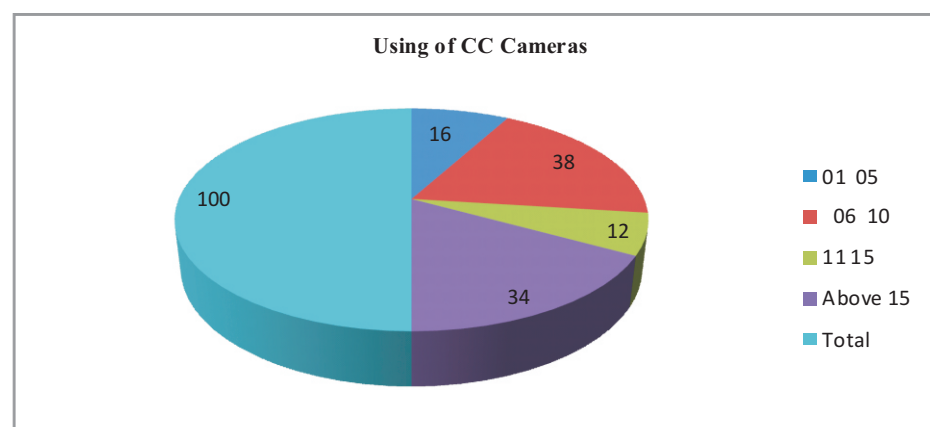
Interpretation

The above 100 Organization were surveyed. Of them 94% organizations have and using he CC cameras, and only 6 Organizations not using Cameras.

Table 2 : No. of CC Cameras Installed in Each Organization

Particulars	No. of Respondents	Percentage (%)
01- 05	16	16
06- 10	38	38
11- 15	12	12
Above 15	34	34
Total	100	100

Figure 3: Chart Showing the number of CC cameras installed



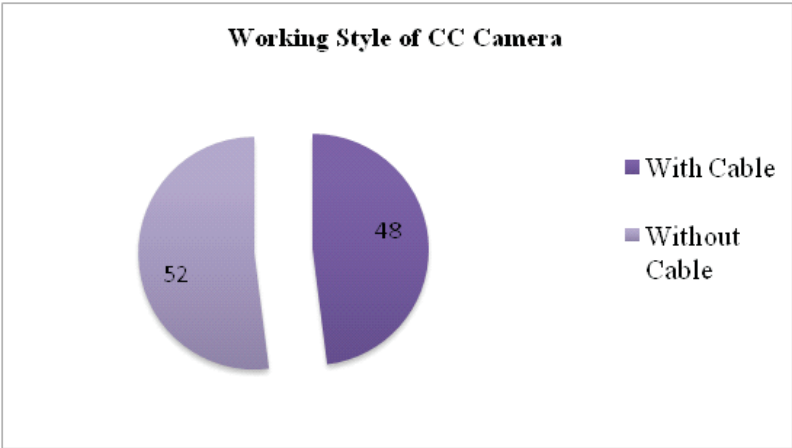
Interpretation:

The above figure shows that 38% of Organizations are using 6 - 10 CC Cameras, 34% of Organizations are using above 15 CC Cameras, 16% of Organizations are using 1-5 CC Cameras, 12% of Organizations are using 11- 15 CC Cameras.

Table 3:Working Style of CC camera

Particulars	No. of Respondents	Percentage (%)
With Cable	48	48
Without Cable	52	52
TOTAL	100	100

Figure 4: Chart showing the working style of CC cameras



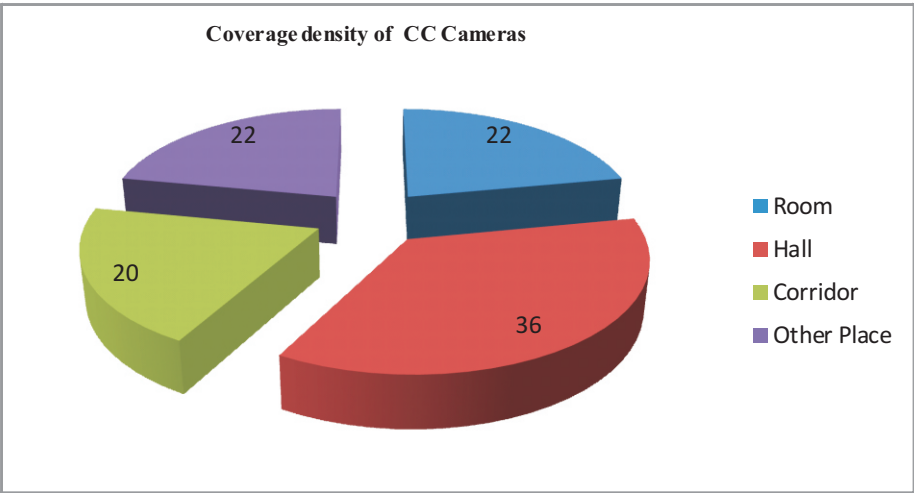
Interpretation

The above table shows on 48% Organization using the CC Camera with Cable and 52% without Cable.

Table 4:Coverage density of CC Cameras

Particulars	No. of Respondents	Percentage (%)
Store Room	22	22
Main Hall	36	36
Corridor	20	20
Other Places	22	22
Total	100	100

Figure 5: Chart showing the Coverage density of CC cameras



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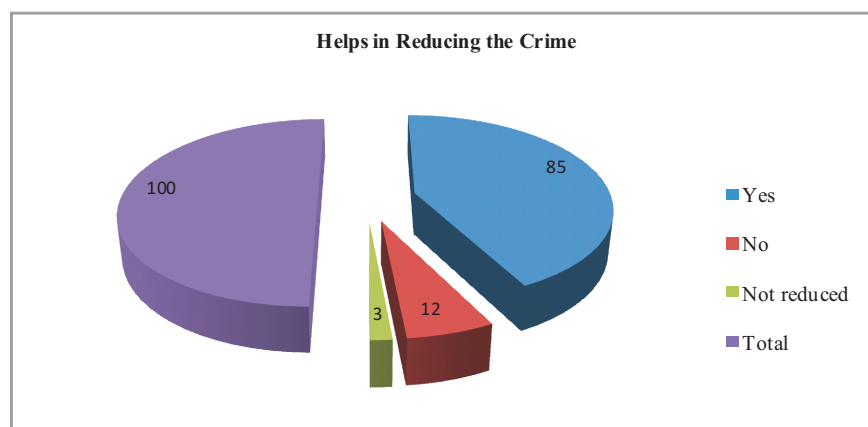
Interpretation

The above table shows that 22% preferring coverage of CC Cameras for Room, 36% for Hall, 20% for Corridor and 22% of other Places.

Table 5: Reduction in the Crime Rate

Particulars	No. of Respondents	Percentage (%)
Yes	85	85
Moderate	12	12
Not reduced	3	3
Total	100	100

Figure 6: Chart showing the reduction in crime rates using CC systems



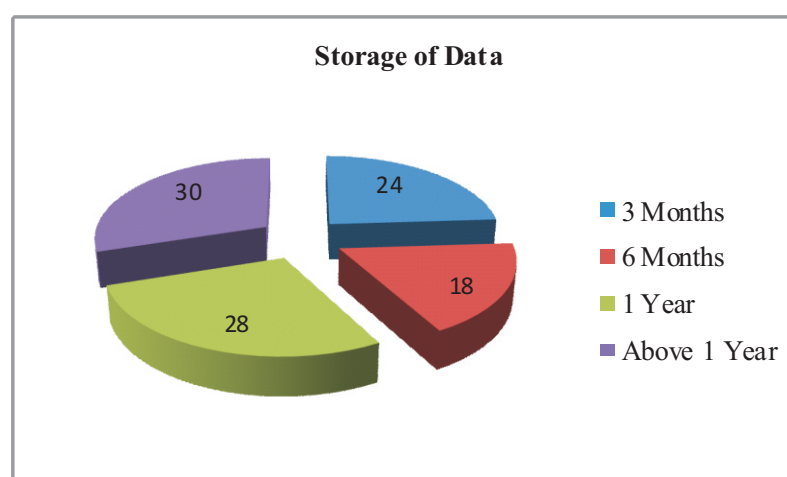
Interpretation

The above table shows 85% people says the CC Camera System helps in reducing the Crime Rate and 15% opposed

Table 6: Storage of Data in time period

Particulars	No. of Respondents	Percentage (%)
3 Months	23	23
6 Months	17	17
6months -1 Year	25	25
Above 1 Year	35	35
Total	100	100

Figure 7: Chart showing the span of storage of Data in time period



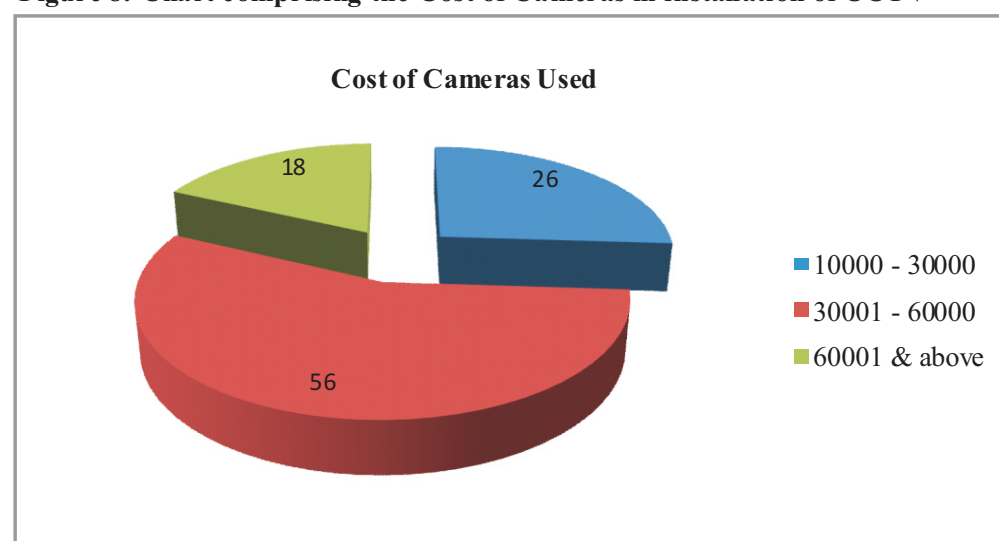
Interpretation

The above table shows 30% Organization said that the Data stored for above 1 year, 28 % says up to One year 24% says up to 3 months and 18% says up to 6 Months.

Table 7: Cost Component involved in CCTV Installation

Particulars	No.of Respondents	Percentage (%)
10000 - 30000	26	26
30001 - 60000	56	56
60001 & above	18	18
Total	100	100

Figure 8: Chart comprising the Cost of Cameras in installation of CCTV



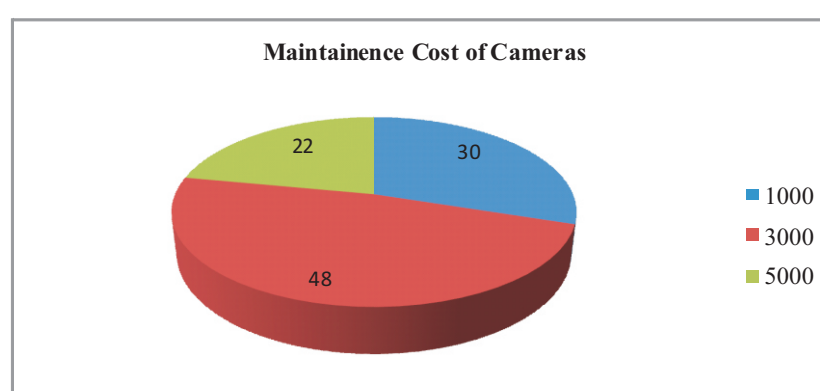
Interpretation

The above table shows that 56% of the organizations uses CC Cameras ranged from Rs.30,000 to Rs.60,000, 26% of the organizations uses CC Cameras ranges between Rs.30000 –Rs. 60000 and only 18 % of the respondents are using CC Cameras above Rs.60,000.

Table 8: Maintenance Cost of Cameras

Particulars	No. of Respondents	Percentage (%)
1000-3000	30	30
3001-5000	48	48
5001-10000	22	22
Total	100	100

Figure 9: Chart showing Annual Maintenance Cost of CCTVs (Per Annum)



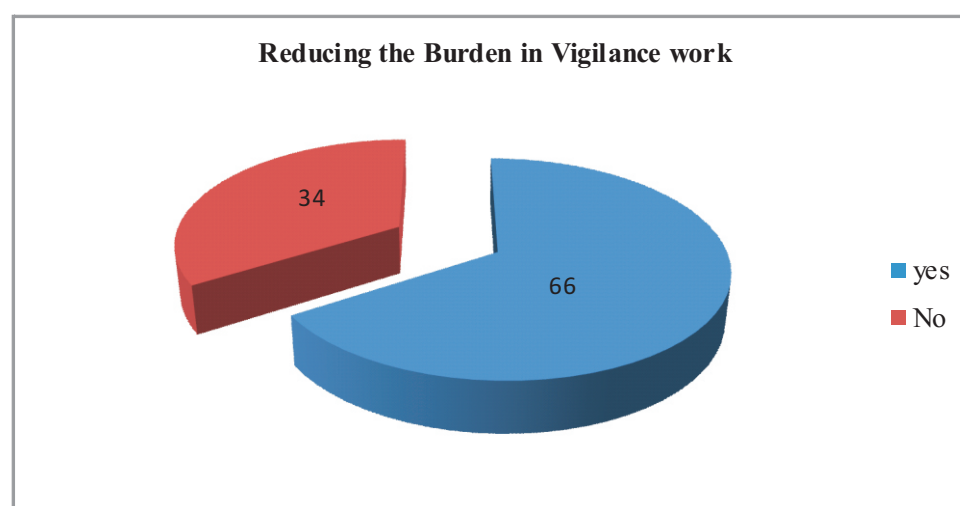
Interpretation

The above table shows 48% says the maintenance cost of Cameras are ranged between 1000 - 3000 and 30% says between 1000 and 22% says it is up to 5000.

Table 9: Burden in Vigilance Work

Particulars	No. of Respondents	Percentage (%)
Yes	78	78
No	22	22
Total	100	100

Figure 10: Chart showing the reduction of burden in Vigilance Work



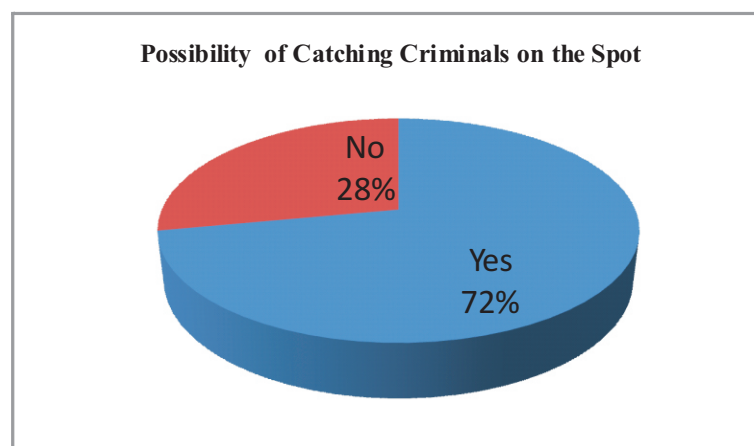
Interpretation

The above table shows that 78% of the organizations say the Vigilance work is reduced by using CC Cameras and 22% of the organizations say that no reduction of vigilance work.

Table 10: Possibility of Catching Criminals on the Spot

Particulars	No. of Respondents	Percentage (%)
Yes	72	72
No	28	28
Total	100	100

Figure 11: Chart showing the possibility of catching the crimes



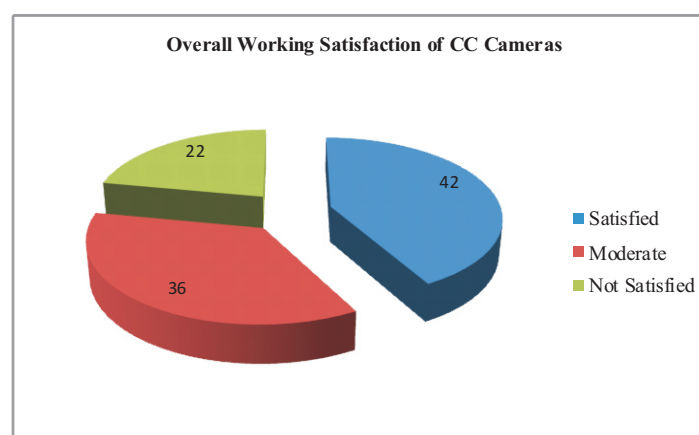
Interpretation

The above table shows that 72 % of the organizations opined that there is a Possibility of Catching the Criminals on the Spot and 28 % of the organizations says that no catching of criminals on the spot.

Table 11:Overall Working Satisfaction of CC Cameras

Particulars	No. of Respondents	Percentage (%)
Satisfied	63	63
Moderate	25	25
Not Satisfied	12	12
Total	100	100

Figure 12: Chart showing the overall working satisfaction of CCTV system



Interpretation

The above table shows that 63% are satisfied with the overall performance of CC Cameras, 25% says moderately satisfied, and 12% says not satisfied with the overall performance of cc cameras.

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FINDINGS AND DATA DISCUSSIONS:

- It was found that 94% of organizations are using CC Cameras, which is a major usage. It is also observed that more or less they are using without cable camera style.
- Nearly 38% are using 6-10 Cameras followed by 34% who are using more than 15 cameras and most of them using about 74% are using Branded Cameras.
- Most of the CC Cameras have had a long density in main hall coverage (Commercial Spaces)
- It was reported that 94% of organizations have are satisfied with working condition of CC Cameras.
- 85% have claimed that the CC Cameras surveillance system has helped them in reduction of crime activities.
- It was noted that majority respondents (35%) do have the data storage for more than 1 year on an average it stands between 3 months to 1 year.
- Most of the organizations (56%) opined that they have incurred more cost, the range of Rs.30,000 to Rs.60,000 on installation of CC Cameras. They also report that an average amount of Rs.5000/- is paid for annual maintenance cost of CC Cameras.
- It was agreed by 78% respondents that there is a tremendous reduction in vigilance work due to CC installation. They even confirm that they could catch the crimes and criminals on the spot with the help of CC surveillance system (72%).
- Finally, the general and specific performance of CC Cameras was rated as satisfactory by 63%, which was followed by moderate opinions at 25%.

CONCLUSION

The CCTV systems are now a days, widely used and became a part of the organization safety and security. It is reported in the present research study in many parts that it has helped the business outlets in catch hold of crimes on spot and as well as in reduction of potential crimes. This has also showed that the vigilance work of supervisors, Managers and store keepers had reduced tremendously due to installation of CCTV systems in store rooms, Main business halls and other areas. Even, the cost component of CCTV is not too high to invest for a business. Of course, this cost is to reduce the future losses and hence can be invested wisely by the business managers. On a whole, the working conditions and overall performance of CC Cameras proved to be satisfactory and the business enterprises could increase their productivity out of the CCTV Surveillance System.

REFERENCES

- 1.Vermin, Distance Education In Technological Age, Anmol Publications Pvt. Ltd., 2005, pp.166, ISBN 81-261-2210-2, ISBN 978-81-261-2210-3.
- 2.Distance education in Asia and the Pacific: Proceedings Of The Regional Seminar On Distance Education, 26 November - 3 December 1986", Asian Development Bank, Bangkok, Thailand, Volume 2, 1987
- 3.Lewis, Paul. "Every step you take: UK underground centre that is spy capital of the world", The Guardian, March 2, 200
- 4.Dornberger, Walter: V-2, 1954, and ASIN: B000P6L1ES, page 14.
- 5.Robb, Gary C. (1979) "Police Use of CCTV Surveillance: Constitutional Implications and Proposed Regulations" University of Michigan Journal of Law Reform. pg. 572]
- 6.Walsh B.C., Farrington D.P. (2009). "Public area CCTV and crime prevention: An updated systematic review and meta-analysis". Justice Quarterly 26 (4): 716–745. doi:10.1080/07418820802506206.

ONLINE SOURCES

- 1.www.cctvsentry.com
- 2.www.dailymotion.com
- 3.www.naaptol.com
- 4.www.ehow.com
- 5.www.cctvcamerasuk.co.uk
- 6.www.en.wikipedia.org