

“An investigation into the Video Surveillance System at Indus”



2010

Name: KAPADIA SIKANDER

IBCN: 002272-045

Subject: ITGS

Supervisor: Mr. Mohan Robert

Words: 3,866

Date: 21st Jan 2009

Abstract

“An investigation into the Video Surveillance System at Indus”

The increasing motive of safety and security for students in schools today has enforced many schools to have video surveillance systems installed. I have chosen the topic, “An Investigation into Video Surveillance at Indus” because; security has become one of the top priorities for schools. Video surveillance has been chosen by most of the schools for protecting their school as it has proven to be a very efficient method of supervision. Here, in Indus International School two cameras have been installed and are operated around the clock. I discussed about video surveillance at schools in general and Indus International School in particular. All members are conscious of the video surveillance system at Indus International School. I have investigated, teachers, students and security, they think that video surveillance is the best way to protect school from all dangers. Few students feel that their privacy is being invaded. Even the security and teachers feel their privacy is being invaded to an extent. However, when an overall view was taken, all the three groups have no problem with the video surveillance system. Benefits of video surveillance at Indus have been stated along with the questionnaire feedback analysis. Impact of video surveillance at Indus has been briefed with reasons taking the student’s safety, security and privacy into consideration. IT background of the issue has been covered along with the software and hardware requirements. Information Technology issues containing ethical consideration such as invasion of privacy is discussed. Social and ethical issues arising out of video surveillance such as vandalism and the installation of this security has been briefed. As per my investigation I came to a conclusion that video surveillance systems are a must for protecting school security, although it should take in the consideration of not invading the privacy of students and teachers.

Word count: 299 words

TABLE OF CONTENTS

ABSTRACT	2
1. “PRESENTATION OF THE ISSUE (INTRODUCTION)”	5
1.1 INTRODUCTION	5
1.2 DEVELOPMENT OF VIDEO SURVEILLANCE	5
1.3 WHAT IS VIDEO SURVEILLANCE?	7
1.4 VIDEO SURVEILLANCE AT INDUS	7
2 “THE IT BACKGROUND OF THE ISSUE”	8
2.1 PERIPHERAL REQUIREMENTS	8
2.2 THE WORKING OF VIDEO SURVEILLANCE	8
3. “INVESTIGATION INTO VIDEO SURVEILLANCES”	9
3.1 SECONDARY RESEARCH EXAMPLE	9
3.2 ANALYSIS OF SURVEY CONDUCTED AMONG STUDENTS	10
3.3 ANALYSES OF TEACHERS SURVEY VERSUS STUDENTS SURVEY	13
4. “IMPACT OF THE ISSUE”	15
4.1 VIDEO SURVEILLANCE -- ADDRESSING STUDENT SAFETY AND SECURITY	15
4.2 IMPACT ON SCHOOLS USING VIDEO SURVEILLANCE?	15
4.3 MISCELLANEOUS BENEFITS OF VIDEO SURVEILLANCE.	16
5. “PROBLEMS AND ISSUE ON VIDEO SURVEILLANCE”	17
5.1 INFORMATION TECHNOLOGY ISSUES REQUIRING ETHICAL CONSIDERATION	17
5.2 . SOCIAL AND ETHICAL ISSUES ARISING OUT OF VIDEO SURVEILLANCE	17
5.3. SOLUTIONS TO THE PROBLEM	17
6. CONCLUSION.....	19
BIBLIOGRAPHY	20
INDEX.....	21
APPENDIX	22

TABLE OF GRAPHS

Graphs 1 – Student Survey with answers 1-5	11
Graphs 2 – Students survey with answers 5 to 10	12

TABLE OF FIGURES

Figure 1 – Quad Multiplexer.....	5
Figure 2 - DVR	6
Figure 3 - Network Switch.....	6
Figure 4 - Axis Video Server.....	6
Figure 5 - Network Video	7

TABLE OF TABULATIONS

Table 1 - Survey Calculations for Students	10
Table 2 - Survey Computation of Teachers	13
Table 3 - Survey Calculations for Security Officers.....	14

1. “Presentation of the Issue (Introduction)”

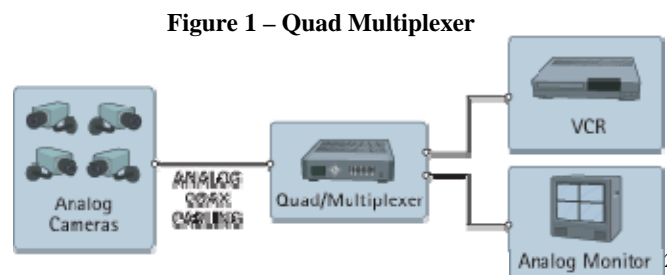
1.1 Introduction

I decided to work on the topic- “An investigation into the video surveillance system in Indus.” This topic inspired me after the numerous terrorist attacks in India and it was quite relevant to my ITGS extended essay and therefore, I thought of investigating our security systems in the school. Our school is well secure in terms of its boundaries and the security guards in place. But with reference to the IT usage in terms of security and privacy I found that there was a weak link and thus, I decided to take an in depth study of the same. As our campus is very huge the impact of video surveillances, will naturally improve the security system of our school.

1.2 Development of Video Surveillance

Video surveillance, usually known as CCTV (closed circuit television), is an industry which is over thirty years old and has had its share of changes in technology. Like all the other industries, countless consumers’ greater than ever demands on the goods and services are leading to the changes, and growing technologies are supporting them. Video surveillance systems began as 100% analog systems which are now steadily becoming into digital systems.¹

To observe the video, analog monitors linked to a VCR, quad, or multiplexer.



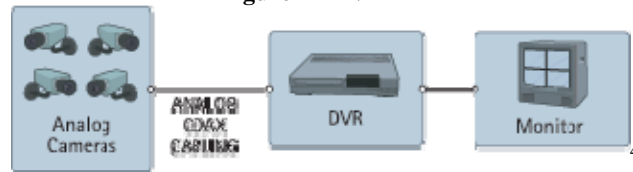
Towards the mid-1990s, the industry saw its very first digital advancement by means of the introduction of the DVR. The DVR along with its hard drives substituted the VCR as the medium of recording. This helped digitize and compress the video in order to store the video for days.³

¹ (infosectoday)

² (axis)

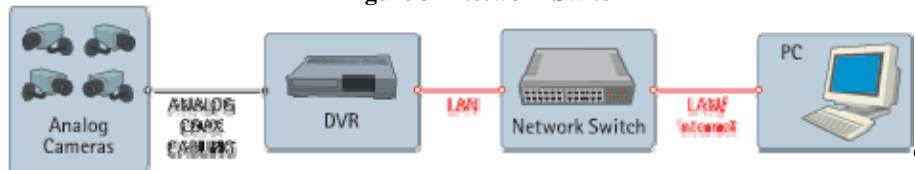
³ (infosectoday)

Figure 2 - DVR



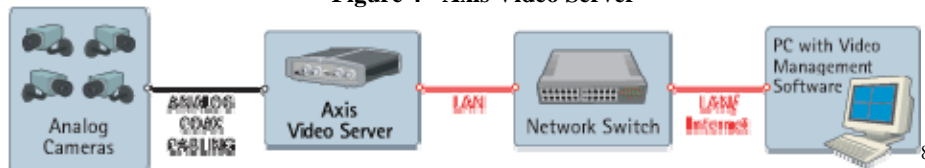
Later on DVRs were equipped by an Ethernet port intended for network connectivity. This system was introduced so that the analog cameras could be networked by the means of using a network DVR meant for remote monitoring of live or recorded video.⁵

Figure 3 - Network Switch



In time the industry came up with the introduction of the video encoder which after digitizing and compressing the video from the analog cameras sends it over an IP network. This data further goes to a PC server which runs video management software for recording or monitoring.⁷

Figure 4 - Axis Video Server



Ultimately, a true network system was developed from where videos from the network cameras were constantly transferred on an IP network. This system takes all benefits of digital technology and gives continuous image quality to the spectators at any site.⁹

⁴ (axis)

⁵ (infosectoday)

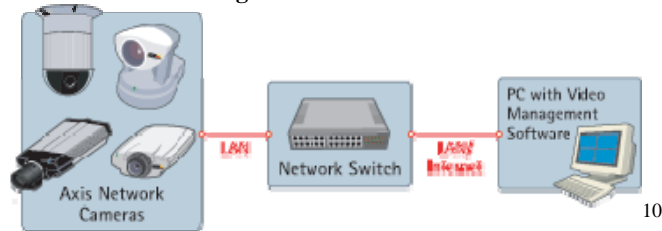
⁶ (axis)

⁷ (infosectoday)

⁸ (axis)

⁹ (infosectoday)

Figure 5 - Network Video



1.3 What is video surveillance?

Video surveillance systems are systems which monitor activities within public places, industries or commercial buildings for a live or afterward review of the recording.¹¹ This is a piece of equipment which enables fixed image capture abilities that permits video images and removed data to be compressed, kept in storage or transmitted on communication networks or a digital data network.¹² Video surveillance systems on the whole help to capture motion and activities in the areas that they are installed in and therefore, it helps in showing those activities on PC monitors which help the spectators to check whether they are protected and secure or not.

1.4 Video surveillance at Indus

Indus got the video surveillance system installed in the year 2009. The security department wanted a more secure campus for the benefit of the school and it's people and therefore, came to a decision where they got two cameras installed in the school. These two cameras monitor large areas on the campus. There is one camera which is in front of the main gate which rotates on a 180 degree axis which captures every motion from the parking lots of buses and cars till the end of the opposite side of the area and the main gate. The second camera has been put up on the water tank tower which is the tallest building in school and from there the camera captures motion from a very broad part of the campus. "Getting these cameras installed helps the school a lot, and also helps us to know if there are any kind of threats in the school campus" says the chief security of our school D John Kennedy. As Indus is an international school it has hostels in it's premises for the girls and boys to live. Kennedy also has ideas of getting another two more cameras installed soon near the Boys Hostel and the Girls Hostel. "This will be an additional protection for the kids who live on

¹⁰ (axis)

¹¹ (Wisegeek)

¹² (webopedia)

campus as these cameras will operate around the clock and will observe every motion outside the hostels to keep the kids safe” says Kennedy. Also when he was questioned about the privacy of the people he said that all the cameras are outside the buildings and will not affect the indoor activities of people.¹³

2 “The IT Background of the Issue”

2.1 *Peripheral requirements*

The parts for viewing your cameras over the internet: A DVR, Broadband connectivity and cameras. These can be hard-wired or wireless.

“Any TCP/IP network or dial-up connection, Remote operation through included client software, Remote operation through standard internet browser, Adjustable video compression quality, Password and username access control, Adjustable video speed, Unlimited number of client/server connections, Multiple simultaneous connections to different server sites, Easy switching between multiple active connections, Local recording of video stream from the remote viewing site¹⁴”

2.2 *The working of video surveillance*

Once you get a security DVR, you can install its software that will run on your computer. This software will help do various things, like- Recording, Motion Detection, Viewing, Playback, and monitoring on the internet. This software will run a web server. To enter this server and monitor through the cameras there will be a need to type in an IP address. This IP address will be unique for every different computer. Thus, by entering the IP address you can then view what is going on in the area where the camera is placed.

Cameras : Cameras fluctuate broadly according to the desired usage. For a far off observation some have zoom lenses, for smaller rooms there are wide angles (fish eye), for a night vision observation they have UV light which is invisible to humans, for the day there are color ability ones. Most of these have zooming, tilting and panning options. They also vary according to shapes and sizes. From extremely small sizes put inside smoke detectors, to larger ones put up on the walls. This can be done wirelessly as well if wanted.

¹³ (John, 2009)

¹⁴ (wearecctv)

Recording: Recordings are possible up to one hundred and sixty frames per second. Unfortunately the human eye can just view twenty frames per second. Every system can be configured to make use of one to sixty four cameras at the same time. Digital recording on the standard computer hard drive can give up to twenty four hours a day, for sixty days recording in ten frames per second for just one camera. A four camera system would give fifteen days, with all four non stop view of recording. Towards the end of the programmed loop, the system replaces the previous data with the new data it has received. Thus, there is no check up maintenance or any requirement to replace the entire tape.

Motion Activated Recording just records the times when there is any motion observed by the camera. The motion detectors can be set to respond only on a part of the camera view or even on the full view. This feature is very helpful for outdoor cameras. Once the camera is set to the mode, its storage room can be enlarged to months of recording.¹⁵

Online real time streaming: Through computers that are connected to the internet, licensed users can view all of their cameras in real time. The process is very simple as the user just has to access the web site, enter the user id and password and the IP address of the computer which is required mostly. After this is done the users can watch what is going on in the respective locations that they have gotten their cameras installed in. Also another great thing about being able to watch in real time is that motion detectors can be programmed to send e-mails with pictures incase of any occasion observed.

3. “Investigation into video surveillances”

3.1 *Secondary Research Example*

“We chose Santiago as the pilot site because we felt this solution would make the greatest impact there in terms of reducing graffiti tagging and other incidents, as well as improving safety said Rick Nakano, the director of business services for the district. We were experiencing the kinds of problems that are fairly typical in a high school, like a lot of graffiti on weekends and in the summer, some vandalism and theft, especially in portable classrooms that are easier to break into, and some fights, explained Ben Wolf, the principal at Santiago High School. We struggle with finding solutions just like any school does. So, when the

¹⁵ (surveillance)

district approached me with the idea of having a camera system, we were all for it. The cameras were put up in locations where there would be no interference in classroom activities or any other activities based on learning. Mainly cameras can be put outside the school buildings so that there are no disturbances.”¹⁶¹⁷

3.2 Analysis of Survey conducted among students

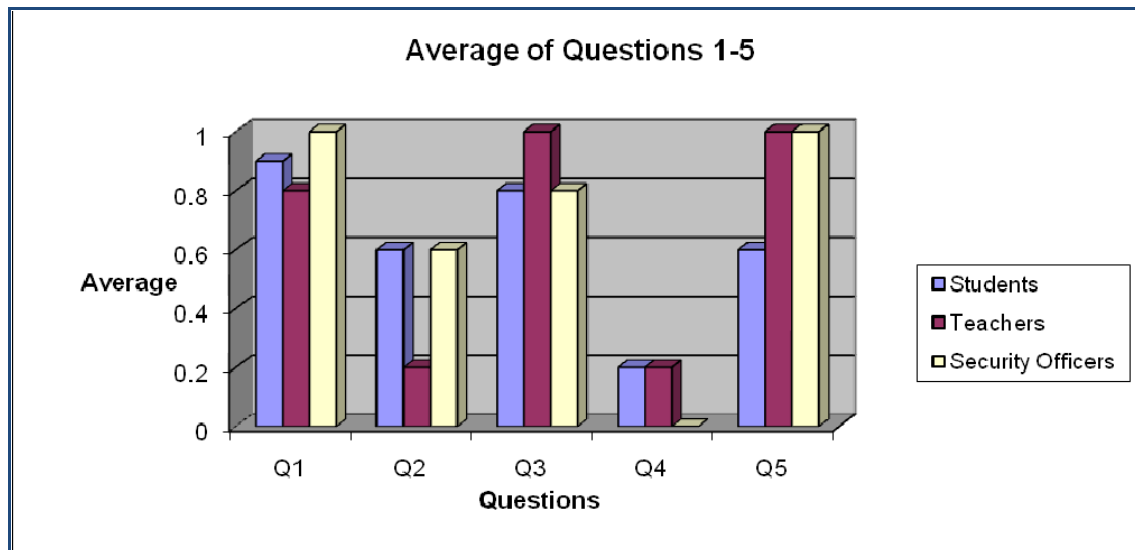
Table 1 - Survey Calculations for Students

Survey Calculations for Students											
Sr.No	Name	Questions									
		1	2	3	4	5	6	7	8	9	10
1	Jong Yeon Moon	0	1	1	0	0	3	3	4	3	3
2	Rohit Khanna	1	1	1	1	1	4	3	2	1	4
3	Parth Patel	1	1	1	0	1	4	3	2	1	4
4	Neil Jain	1	0	1	0	1	3	3	4	2	4
5	Yugal Jain	1	1	1	0	0	2	3	4	1	3
6	Bhaskar Menon	1	1	0	1	1	1	1	1	1	2
7	Shravan Jasti	1	0	1	0	0	2	1	1	1	3
8	Min Song Lee	1	0	1	0	0	3	2	3	2	3
9	Surya Sangwan	1	1	0	0	1	1	1	1	1	1
10	Ronak Sanghvi	1	0	1	0	1	2	2	1	1	2
	Total	9	6	8	2	6	25	22	23	14	29
	Minimum	0	0	0	0	0	1	1	1	1	1
	Maximum	1	1	1	1	1	4	3	4	3	4
	Average	0.9	0.6	0.8	0.2	0.6	2.5	2.2	2.3	1.4	2.9
	Count	10	10	10	10	10	10	10	10	10	10

This analysis is on the survey I conducted on ten students from Indus International School Bangalore about the video surveillance system at our school. These ten questions are all close ended, with the first five which are a 'Yes/No' type and the next five i.e. six to ten which are 'rating' ones (rated on a scale of 1-5). For the first five questions instead of yes and no I represented '1' as a yes and '0' as a no. As you can see I have used several formulae to calculate the total, minimum, maximum, average and count to help me analyze the data I have managed to gather. The first question asks whether the students are aware of the video

¹⁷ (cisco)

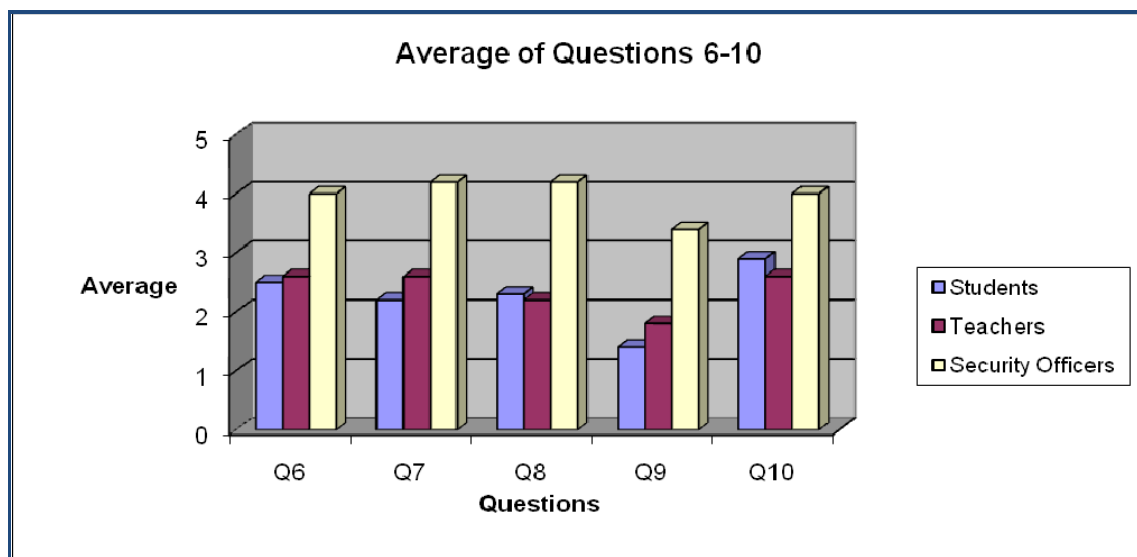
surveillance at school. From the formulae we can see that the total is nine which means that out of ten, nine students were aware of the video surveillance system in school. Also the average is 0.9 which again shows that the students at Indus are aware of the system in the school. The second question for the students asks if the system affects their privacy and the response to the question shows that out of ten six students said yes which means four disagreed. This shows that the video surveillance systems do affect the privacy of students in the school. Question three inquires whether the video surveillance is a good system to protect the school and the reaction to this question had an average of 0.8 which shows that students feel that it is a good method to protect the security system in school. Question four asks if the system has been a hindrance to the students in any way. This question had an average of 0.2 which means that out of ten, two students did have a problem with the system which shows that the system didn't cause much of trouble for most of the students. The last 'Yes/No' type of question i.e. the fifth one asks if the system works around the clock. The response to this question should certainly have the same answer as we are talking about the system in just one school. However, we have an average of 0.6 for this question which means that out of ten, four of the students said no. This answer thus, cannot give us a clear understanding of the operating time as the students do not know about it and therefore, we will come to know the right answer after analyzing the survey done on the school's security officers.



Graphs 1 – Student Survey with answers 1-5

The next set of questions which is six to ten are the questions based on 'rating' as I stated in the beginning of the analyses. Question six is based on the effectiveness of the video

surveillance system in school which has to be rated on the scale of 1-5. On that hand of responses, we can see that the minimum rate is one and the maximum is four with an average of 2.5. This shows us that if the average is 2.5 most of the students gave a low point for the effectiveness of the system. Question seven investigates the productivity of the system in the school. Here, we have an average of 2.2 with three being the maximum point and 1 the minimum. This again shows that the students do not feel that the system in school is very productive. Question eight asks the students how helpful the system is for them. The reaction to this question had a total of twenty three points on a fifty with four being it's maximum point, and with an average of 2.3 which again shows us that on an average most of the students have given low ratings to the question. The ninth question inquires whether the students are interested in having the system installed in the classrooms as well and the reaction to this question has a total of fourteen on fifty with a maximum of only three and an average of 1.4. This precisely gives us an understanding that most of students are not interested in this option. The last close ended question i.e. ten which inquires the usefulness of the system had a response which was higher than the rest but yet quiet low on a total of fifty. This had a total of twenty nine on fifty with an average of 2.9 which again shows that according to the students in the school the system is sort of useful.



Graphs 2 – Students survey with answers 5 to 10

3.3 Analyses of teachers survey versus students survey

A comparison between the analyses of the students' survey data with the data of the teachers gathered.

Table 2 - Survey Computation of Teachers

Sr.No	Name	Questions									
		1	2	3	4	5	6	7	8	9	10
11	Kavita Sinha	1	0	1	0	1	3	3	3	3	3
12	Vinay	0	1	1	0	1	2	3	1	2	2
13	Ajay Sekhar	1	0	1	0	1	4	4	2	1	3
14	Kunal Kuttappa	1	0	1	0	1	1	1	2	1	1
15	Rani Mohan	1	0	1	1	1	3	2	3	2	4
	Total	4	1	5	1	5	13	13	11	9	13
	Minimum	0	0	1	0	1	1	1	1	1	1
	Maximum	1	1	1	1	1	4	4	3	3	4
	Average	0.8	0.2	1	0.2	1	2.6	2.6	2.2	1.8	2.6
	Count	5	5	5	5	5	5	5	5	5	5

When compared with the survey calculations of the teachers at Indus there are several similarities and some differences in the two. As the number of teachers who were interrogated were only five I will compare the calculations by only analyzing their averages as there will be no . Therefore, question one which inquires the awareness of the video surveillance system has a close result compared to that of the students as the teachers have an average of 0.8. The second question that asks whether privacy is affected has much of a difference had an average of 0.6 on this question whereas, teachers have a 0.2 which clearly shows that teachers have no privacy issues with this security system. Question three has a very similar reaction from both; teachers and students as the averages are 1 and 0.8 respectively which means that both these groups feel that the video surveillance system is a good way of protecting the system. The fourth question has the exact same response as both the averages are 0.2 which means that both the groups have hardly had any hindrances due to the system. Question five where the students of Indus International had fluctuating results of whether the system works around the clock, now has a definite result from the teachers as the average for them is a 1, which indeed proves that yes the system does operate at all times.

For the questions regarding 'rating' there is again a low rate for all the questions like it was for students. This is a similarity as we can see that teachers too have a low interest in installing cameras in class rooms just like students and this can be seen in question nine where teachers too have given a low rating and the average is 1.8. Even for the rest of the questions the rating is similar as none of the questions have got a high response or even a medium one with an average of three. Therefore, the last five questions have a very similar kind of reaction for the teachers and students.

A contrast between the comparison of survey data of students and teachers with the survey data of the security officers.

Table 3 - Survey Calculations for Security Officers

Sr.No	Name	Questions									
		1	2	3	4	5	6	7	8	9	10
16	D John Kennedi	1	1	1	0	1	5	4	5	3	3
17	Rahul	1	1	1	0	1	5	5	5	5	5
18	Hari Babu	1	0	0	0	1	3	4	2	1	3
19	Babul Mallik	1	0	1	0	1	3	4	5	5	4
20	Basanta	1	1	1	0	1	4	4	4	3	5
	Total	5	3	4	0	5	20	21	21	17	20
	Minimum	1	0	0	0	1	3	4	2	1	3
	Maximum	1	1	1	0	1	5	5	5	5	5
	Average	1	0.6	0.8	0	1	4	4.2	4.2	3.4	4
	Count	5	5	5	5	5	5	5	5	5	5

As the video surveillance system is a system for the school's security it is obvious that regarding this system the response in contrast to the comparison between the survey data of the students and teachers at Indus International, the survey data of the security officers at the school has a big difference. The reason being that they are the security officials and have a thorough knowledge about the video surveillance at Indus. This difference can be spotted mainly in question numbers six to ten which consist of the 'rating' type questions.

Previously for students and teachers all the averages for questions six to ten were below a three which means they were all rated low. Whereas, for the security officers these questions have an average of mostly a four. For example, for the effectiveness of the video surveillance where students had an average of 2.5 and teachers a 2.6, security officers have a 4. It is relatively the same for questions seven, eight, nine and ten.

For the ‘Yes/No’ type questions there are a few similarities as well. In the third question all three of the groups have a high average; in fact the security officers have an average of 1. This shows that all of these stakeholders think that the video surveillance system is a good way to protect the school. It is more or less the same for the rest of the questions too.

4. “Impact of the Issue”

4.1 Video Surveillance -- Addressing Student Safety and Security

The increasing motive of safety and security for students in schools today has enforced many public schools to have equipments of video surveillance CCTV systems. Having these systems installed in the school campus is a cost intensive process so it is necessary for the school management to know that what they are doing is right. The school should ensure there is a correct way to put off threat, vandalism, and to put a stop to trespassers from entering the school. “When schools have the video surveillance systems installed privacy concerns occur from the parents, students and the general public groups is quiet natural.”¹⁸

Indus International School has 2 Video Surveillance Cameras. One is connected opposite of the main gate to check the people and vehicles which are entered from the main gate. The other one is on top of the water tank, which is near the tennis court. This will keep track on those who are passing near by the Secondary block, Resource block and the Dining hall. All these Video Cameras have the facility of zooming in, so that the objects can be well identified and the monitoring is clear.

4.2 Impact on schools using video surveillance?

Prior to having video surveillance systems installed in the school in order to stop theft, vandalism, trespassing or fights, the management of the school must sit down and consider a systematic and detailed list of what they need in relation to their security concerns.

Having video surveillance systems installed in the school helps reduce student fear of violence and contributes to their focus on studying. “The security systems start from \$500,000 per region for an analog system which consists of Closed Circuit Television (CCTV) monitors to million-dollar IP-based systems with digital surveillance cameras linked

¹⁸ (Indus, 2009)

to a web network. These cameras are usually put up in near entrances, halls, parking lots, common areas or on building tops to have an overview of the area. All these areas are usually observed round the clock.”¹⁹

“Orange High School’s Principal, in Orange County, California ‘JK Johnson’ had gotten twenty seven cameras installed in his school and was quoted saying If it cuts down the vandalism think it would be a wise expenditure. It’s another set of eyes out there to help keep the school safe if something were to happen.”²⁰

4.3 Miscellaneous benefits of Video Surveillance.

The surveillance system gives the school management information and proof of regularity. The cameras persuade against crime and could possibly lead to some students to confess to violence that was not even caught on the security cameras. The cameras will contribute to the security staff to carry on a more job specified work. It saves time as well as money in the long run as the new security system will perform the everyday routine tasks.

If the school decides to get video surveillance systems installed in their schools, they need to have sufficient research and plans. They have to make sure their new security system is helpful and advantageous for the students. Once the security systems are installed, the school must then calculate its effectiveness at particular times. They can adjust to later challenges regarding security concerns and student needs.

¹⁹ (Indus, 2009)

²⁰ (Indus, 2009)

5. “Problems and Issue on Video Surveillance”

5.1 *Information technology issues requiring ethical consideration*

Invasion of Privacy- When cameras get installed in schools there is usually a big concern about the privacy of the school’s students and its staff. Students get insecure as they cannot behave originally as they are causing a lot of invasion into their privacy, though it may be a good measure of keeping them into control. The teachers may become insecure always with a fear of somebody monitoring their way of teaching and their respective methods. But in general the external video cameras are meant for security purposes. The schools should check the municipal laws or with the educational board prior to installing and making students captive objects of surveillance.

5.2 . *Social and ethical Issues arising out of Video Surveillance*

Vandalism - Although cameras are usually advantageous, systems are always under risk due to vandalism. These systems do not assure security and cannot be seen as an assurance. Staff and students should stay careful and attentive of their security and behave responsibly incase of an emergency.

Installation of this security system primarily requires the maintenance and the staff. This costs too much for the school. Privacy privileges should be measured. There should be no recordings of audio tracks. The cameras should only be placed outside the school buildings. Everyone has to be assured that the system will fairly monitor students and not get interfering.

5.3. *Solutions to the problem*

To minimize invasion of privacy the video surveillance systems should be installed outside the school buildings so that none of the activities indoors gets monitored. This will reduce the problem of invasion of privacy majorly.

For minimizing vandalism in schools teachers should mentor their students and explain to them that minor mischief can be overlooked but when it comes to behaving in a discipline manner they have to be responsible and be understanding.

Therefore, with these two solutions the two major problems can be minimized to a great extent.

6. Conclusion

After taking a survey from the three groups- students, teachers and the security, I have analyzed the results and finally come to a conclusion that video surveillance is a very good and an efficient tactic to ensure security within the boundaries of Indus International School. One very important thing that I found out was that, safety is the top priority for the school, teachers and students. So, when the issue of privacy is aroused, safety scores more than privacy. Moreover, installing video cameras is of great advantage to the security aspect as there are already security guards all over the school and having video cameras will be a huge bonus as there will be an additional method to reduce threats and accidents in schools. Having video cameras will reduce most kinds of violence in school such as, fights between the students and also vandalism in the school campus will come to an end as the actions will be monitored by the cameras. The chances of robbery will reduce and in case of any issues related to robberies, the cameras can give concrete evidence and the school management can use the recording to recognize the thief and with the help of the police force the robber can be caught. Therefore, it is essential for the school to have video cameras to protect its students, staff and its own property from all sorts of dangers and accidents.

Bibliography

- axis. (n.d.). *Development of Video Surveillance*. Retrieved Nov 11, 2010, from <http://www.axis.com>:
http://www.axis.com/products/video/about_networkvideo/evolution.htm
- cisco. (n.d.). *Video Surveillance -- Addressing Student Safety and Security*. Retrieved Jan 16, 2010, from www.cisco.com:
http://www.cisco.com/en/US/prod/collateral/switches/ps5718/ps646/prod_case_study0900aecd803b80d1.html
- Indus, H. (2009). *video surveillance guide*. Bangalore: Indus International School.
- infosectoday. (n.d.). *Development of Video Surveillance*. Retrieved Nov 11, 2009, from www.infosectoday.com:
http://www.infosectoday.com/Articles/Video_Surveillance_Systems.htm
- John. (2009, Dec 5). Security Officer. (Sikander, Interviewer)
- surveillance. (n.d.). *view your home or business over the internet*. Retrieved Jan 15, 2010, from www.surveillance-spy-cameras.com: <http://www.surveillance-spy-cameras.com/howto-guides/view-your-home-or-business-over-the-internet/>
- wearecctv. (n.d.). *Peripheral requirements*. Retrieved Jan 15, 2010, from www.wearecctv.com:
<http://www.wearecctv.com/how%20remote%20cctv%20veiwing%20works.htm>
- webopedia. (n.d.). *What is video surveillance?* Retrieved Nov 5, 2009, from www.webopedia.com:
http://www.webopedia.com/TERM/D/digital_video_surveillance_system.html
- WisegEEK. (n.d.). *What is video surveillance?* Retrieved Nov 20, 2009, from www.wisegEEK.com: <http://www.wisegEEK.com/what-are-video-surveillance-systems.htm>

INDEX

- analog monitors
 - IT Systems, 8
- cameras
 - IT Systems, 3, 9, 10, 11, 12, 13, 17, 18, 19, 20, 22, 23
- Cameras**
 - IT Systems, 11, 18
- CCTV
 - IT System, 8, 18
- privacy
 - Social & Ethical Issues, 3, 8, 11, 14, 16, 18, 20, 22
- Recording**
 - Working of IT system, 11, 12
- security
 - Social & Ethical Issue, 3, 8, 10, 11, 14, 16, 17, 18, 19, 20, 22, 23
- students
 - Stake holder, 3, 5, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22
- TCP/IP
 - IT System, 11
- teachers
 - Stake holder, 3, 5, 16, 17, 20, 21, 22
- vandalism
 - Ethical Issue, 3, 12, 18, 19, 20, 21, 22
- video**
 - IT-Device, 3, 5, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23

Appendix

APPENDIX