

Video Surveillance And Monitoring System For Examination Malpractice In Tertiary Institutions

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ABSTRACT

The objective of this paper is to design and develop a video surveillance and monitoring system that will provide easy access to both live and archived images during and after an institutions examination. My motivation into this paper work is the rate at which students and staff of tertiary institutions participate and encourage examination malpractice. The paper methodology adopted for this paper work was by observation. The top-down software design was adopted for this research. Prototype development methodology was used in the development of the system and Microsoft visual studio 2010; using visual basic in the .net framework was used as the programming language. The resultant outcome of this paper was tested to make sure examination malpractice in tertiary institutions is brought to its lowest minimum, making sure all requirements are met and are working perfectly as expected, bringing all offenders and defaulters involved in examination malpractice to book.

KEYWORD Examination, video, students, surveillance, staff, institutions, system.

INTRODUCTION

Surveillance is the monitoring of the behavior, activities, or other changing information, usually of people for the purpose of influencing, managing, directing, or protecting them. This can include observation from a distance by means of electronic equipment (such as CCTV Cameras), or interception of electronically transmitted information (such as internet traffic or phone calls); and it can include simple, relatively no-or low-technology methods such as human intelligence agents and postal interception. Surveillance is very useful in tertiary institutions so as to maintain social control, recognize and monitor threats and prevent / investigate malpractice activities. Surveillance cameras are video cameras used for the purpose of observing an area. They are often connected to a recording device or IP network, and may be watched by a security guard or law enforcement officer. Surveillance cameras are simple and inexpensive enough to be used in the tertiary institutions and also for everyday surveillance. Video surveillance is found in different areas. Traditionally multiple security cameras are positioned throughout an area, linked to a computer screen. Unfortunately, humans are unable to monitor huge crowd with a good number of population and

may lose focus over time. In this, I describe an automated multi-camera video surveillance system which is able to track students and detect suspicious situations. Automation is used in complex situations to reduce the workload put on the human operator and consequently to increase the productivity and enhance the performance. Workload assessment of operators while using an automatic surveillance system can provide system developers with information about the systems' effectiveness. Furthermore, depending on automation is not only related to the accuracy of the system but also to the human operators' reliance on automatic system. The design of automatic surveillance systems can determine the level of reliability and increase the effectiveness of the surveillance. Automatic surveillance systems are interactive systems and human operators play a central part. Therefore, applying principles of Interaction design should theoretically enhance the performance. There is immediate need for computerized surveillance systems in tertiary institutions. Mounting video cameras is cheap, but finding available human resources to observe the output is expensive.

REVIEW OF THE BODY OF KNOWLEDGE

The word surveillance came from the French word for "watching over"

(www.wikipcdia.com). **Ryan (2007)** defines surveillance as a careful watching of an individual or group of individual especially by the police or army.

According to **Microsoft Encarta Encyclopedia (2006)**, surveillance refers to

Observation of individuals or groups by governmental organization. The word

Surveillance may be applied to observation from a distance by means of electronic equipment (such as CCTV cameras), or interception of electronically, transmitted information (such as internet traffic or phone call (**www.wikepedia.com, 2006**)). According to www.cdphe.state.co.us (2006) surveillance is the system for collection, analysis, interpretation and dissemination of data and information on an ongoing basis.

Micon (2003) also sees surveillance as a mechanical or electronic system or device that enables continuous or periodic video recording, observation or monitoring of an individual or group.

EXAMINATION MALPRACTICE

The **World Bank (2001)** defines examination malpractice as a deliberate wrong doing that is contrary to official examination rules and is purposed to place a candidate at an unfair advantage or disadvantage.

Nwahunanya (2004) defines examination malpractice as the act of omission or commission intended to make a student pass examination without relying absolutely on his or her independent ability. It is therefore clear that examination malpractice is committed by a candidate single handedly or in collaboration with other people such as other higher education students, parents, lecturers, supervisors, invigilators, printers and anybody or group of people before, during or after examination in order to obtain

undeserved marks or grades. Fraud is defined as a deception deliberately practiced in order to secure unfair or unlawful gain or the use of dishonesty, deception, or false representation in order to gain a material advantage or to injure the interests of others.

FORMS OF EXAMINATION MALPRACTICE

Many authors have attempted to discuss the different facets of examination malpractice or irregularities in Tertiary institutions. According to **Asuru (1999) and Olaniran (2002)**, examination malpractice or irregularities can be categorized mainly into three in terms of the period and time they occur. **PRE-**

EXAMINATION IRREGULARITIES/MALPRACTICE

This occurs where the **examinee** procures the **question paper** prior to the examination or has prior knowledge of its content. This is commonly referred to as **“Expo” or leakage**.

IRREGULARITIES/MALPRACTICE DURING EXAMINATION

➤ **Impersonation**

This happens when the legitimate candidate schemes himself or herself out of the Examination for an apparently “superior candidate” to write the examination on previously agreed terms.

➤ **Thuggery, Hooliganism & Physical Assault**

These constitute the confrontational means of perpetrating examination

Malpractice e.g. the use of guns, knives and horse whips in the examination hall to intimidate examination personnel with a view to creating an enabling environment for examination malpractice to be carried out.

➤ **Use of Mercenaries & Delay In Commencement of Examination**

Intentional delay in the commencement of examination to allow “mercenaries” Work out answers to questions for some special candidates who may have Concluded arrangement with Supervisor.

➤ **Spying or Giraffing**

Candidate stretching beyond normal sitting space to copy from another candidate, a practice referred to as ‘giraffing’ because of the rubber necking involved.

➤ **Bringing to the examination hall prohibited materials such as computerized Calculators, in which mathematical formula and short notes are stored, for use, during examination. Some even indulge in illegal carrying of materials often Called ‘missile’, ‘bullet’, and ‘chukuli’ relevant to the examination into the examination hall.**

➤ **Illegal inter-group communications e.g. exchange of question papers, answer booklets, and/or relevant materials in the examination hall; organized unauthorized communications e.g. use of signs, gesticulations, bells at intervals, whistles, whispering, dictation, loud speakers, drums etc.**

POST EXAMINATION MALPRACTICES/IRREGULARITIES

Post examination malpractices or irregularities are considered by the perpetrators to be the safest, surest and most reliable form of malpractices that are capable of achieving desired objectives. The agents commonly used here are Supervisors, Custodians, Examiners, Computer Operators, Typist, Subject Officers, and Office Clerks etc. This occurs by inducing the personnel with sex, gifts, money etc to buy over personnel of examination bodies as well as those connected with the marking and co-ordination of candidates' scripts and storing of scores etc.

They are:

- Substituting a candidate's original script with a re-written one.
- Alteration of scores in favor of candidates.
- Falsification of Statement of Results/Certificate Forgery.
- Sorting or Blocking: This is a relatively new vocabulary in the examination malpractice lexicon meaning, the use of cash or kind or both by an Examinee to influence an Examiner to award an underserved mark.

FACTORS THAT CAUSES EXAMINATION MALPRACTICE

According To Asuru (1999), examination malpractice may not be limited to any one cause, but series of factors which act in concert. **Wokocho (1994), Williams (1995), Chioma (1995) and Brown (1996)** identified such factors as value system of the society, factors, emphasis on paper qualification, psychological factors, poor and inadequate teaching-learning environment/facilities and admission policy as causes of malpractice in both internal and public examinations:-

I). **Societal Value System:** According to **Wokocho (1994)**, Nigeria is a nation of Paradoxes, a nation of climax and anti-climax. Ours is a society where morality, Honesty and social ethics which are the basis of humanism have been thrown to the dogs (**Obagah 1995**). It is the end that justifies the means. This is manifested in the series of electoral fraud, bribery and corruption, perversion of justice, Thuggery, etc. From these, our youths learn that anything could be won or gotten not by merit, but through fraud. The low emphasis on merit as shown by the principles of Federal Character or quota, man-know-man syndrome, tribalism, statist, favoritism, etc, resulting to the gaining of undue advantage, thus sacrificing merit on the altar of mediocrity.

The Combined effect of these is that the school being a microcosm of the larger Society cannot be "holier" than the macro-society. It is thus logical to say that examination malpractice is a reflection of the degenerating moral decadence in our society.

II). **Economic Factors:** Because of the shift on societal value from moral rectitude to wealth at whatever means, and coupled with the continued dwindling economic fortunes of the teacher, most teachers in a

bid to meet with societal standards expected of them and make ends meet, involve in examination malpractice for economic gains. This, in the parlance of examination malpractice is known as “Settlement” or “sorting”. Teachers see their job as the least rewarding and regarded in society, hence are scorned. This makes them susceptible to the allurements of gifts, money and promise of better jobs/contract by students/candidates or their relations. It is an open secret that invigilation of public examinations is now money-spinner jobs for teachers who use the opportunity to extort money from candidates so as to allow them cheat. It is worthy of note too that teachers in most cases pay bribe to be listed as Invigilators/Supervisors; hence they have to recover the money so invested. As observed by **Williams (1995)**, some good candidates come from poor homes and to make ends meets, they accept money from richer but less intelligent Students/candidates to assist them in examination. Also, the willingness of “Mercenaries” to accept to write examinations for their clients is purely for monetary gains.

III). Over Emphasis on Paper Qualification: In Nigeria, undue emphasis is placed on paper qualification to the utter neglect of actual performance. Thus, as long as one has a certificate to show, which is regarded as a meal ticket, it does not necessarily matter whether he can perform what he claims to be. This is predicted on the premise that less emphasis is placed on the assessment of the effective and psychomotor domains. These have a resultant effect of making the Candidates/students get the certificate at all cost.

IV). Psychological Factors: Students in a bid to portray to their parents, teachers, peers, relations, colleagues, etc of their brilliance, indulge in examination malpractice. Also, in a frantic bid to avoid bearing the stigma of failure, they indulge in malpractice. It is pertinent to state that some students may have become regular customers to WAEC, JAMB, etc, or have failed a particular course many times. The fear of such previous failures, resulting to lack of self-confidence makes them resort to malpractice to avert a re-occurrence.

v). Bandwagon Effect: Examination malpractice to say the least has tended to be the rule rather than the exception in most cases. Hence, what matters is whether a candidate has passed and not how. In order to be among the “achievers”, candidates who ordinarily would not have been involved in malpractice, indulge in it in line with a popular saying that “if you cannot beat them, you join them”.

VI). poor and Inadequate Teaching-Learning Environment/Facilities: Conducive learning environment and availability of facilities are a sine-qua-non to effective teaching-learning and good performance in examination. Most of our institutions today lack the basic teaching-learning facilities. Added to this as noted by new swatch (1992), is the issue of incessant strikes which have become permanent feature of the educational system and has seriously disrupted the school calendar. As a result, the students are ill prepared for examinations, hence resort to malpractice to pass.

VII). **Unqualified Candidates/Admission Policy:** The introduction of mass promotion in secondary schools is one of the most costly mistakes in our school system. The result has been academic laxity. When faced with public examinations, the candidates resort to cheating so as to pass in order to get going. This also has negative effects when they get in to higher institution. To get going, they resort to malpractice. It is instructive to note that faculty admission policy into the higher institutions has its toll on students' preference for examination malpractice. As revealed by the Registrar of JAMB, in a News-watch Interview (1992), merit accounts for only 40% of the total admission into Universities, while other criteria like locality, quota, educationally less disadvantaged areas and discretion account for the rest 60%. This thus leads to the admission of mediocre, thus sacrificing merit. This creates distortions in the system, resulting to examination malpractice in all its ramifications.

CONSEQUENCES OF EXAMINATION MALPRACTICE

- Denies and frustrates innocent students to venture into job market.
- Good students are discouraged from working hard in their studies.
- Affects general and standard of services in a country.
- Decreases job efficiency.
- Creation of poor national image and an unproductive society.

TYPES OF SURVEILLANCE

The vast majority of Computer surveillance involves the monitoring of data, traffic and group of individuals.

➤ **Telephone and Mobile Surveillance**

This involves the official and unofficial tapping of telephone line. In USA for instance, the communication Assistance for law Enforcement Act (CALEA) enquires all telephone and Voice over internet protocol Communication be available for real-time wise tapping by Federal Law enforcement and intelligence agencies.

➤ **Surveillance Cameras**

Surveillance Cameras are video Cameras used for the purpose of observing an area. They are often connected to a recording device, IP networks and/or watched by security guard.

➤ **Social Network Surveillance**

One common form of Surveillance is to create maps of social networks based on data from social networking sites such as face book, My Space, Twitter as well as from traffic analysis information from phone call records.

➤ **Aerial Surveillance**

Aerial Surveillance is the gathering of Surveillance, usually visual imagery or video, from an air home vehicle - such as an unmanned aerial vehicle, helicopter, or spy plane. Digital imaging technology,

miniaturized computers, and numerous others technological advances over the past decades have contributed to rapid advances in aerial surveillance hardware such as micro-aerial vehicles, forward-looking infrared, and high resolution imagery capable of identifying objects at extremely long distance.

➤ **Data Mining and Profiling Surveillance**

Data Mining is the search for hidden patterns in large amounts of data. *Data Profiling* in this content is the process of assembling information about a particular individual or group in order to generate a profile - that is, a picture of their pattern and behavior. Data Profiling can be an extremely powerful tool for psychological and social network analysis. A skilled analyst can discover facts about a person that they might not even be consciously aware of themselves.

➤ **Corporate Surveillance**

Corporate Surveillance is the monitoring of a person or group's behavior by a Corporation. The data collected is most often used for marketing purpose or sold to other corporation, but is also regularly shared with government agencies. It can be used as a business intelligence which enables the corporation to better tailor their product and/or services to be desirable to their customers.

➤ **Human Operatives Surveillance**

Organizations that have enemies who wish to gather information about the group's members or activities face the issue of infiltration. In addition to operatives infiltration an organization, the surveillance party may put pressure on certain members of the target organization to act as informants (i.e. disclose the information they hold on the organization and its members).

Field operatives is very expensive, and for governments with wide-searching electronic surveillance tools at their disposal the information recovered from operatives can be often be obtained from less problematic forms of surveillance.

❖ **BENEFITS OF SURVEILLANCE**

Benefits from the use of surveillance system are enormous some of them are:

- a). The system provides a surreptitious/secret monitoring of people's activities
- b). It provides an unimpeded real-time monitoring by the federal law enforcement agencies and other governmental organizations
- c). It makes the activities e.g. examination of tertiary institutions quick and prompt
- d). It provides quick and prompt response when there is a security problems
- e). It makes the location and tracking of law fugitives easier
- f). the system ensures a more secured and safer environment conducive for Meaningful socio- economic development.

❖ **STRENGTH OF THE SYSTEM**

The main strength of the system which is more advantageous than the current system is to save the video clips to the storage media when motion is detected. Other advantage is the capturing of images too. Alarms can be set as well so as to notify the user. Moreover, this system has another high advantage over the other applications as it doesn't involve the use of any database. Databases nowadays are easily hacked, or queries may fail sometimes. This system ensures more security and reliability than the database because the profitability that it will fail is lesser.

❖ **ADVANTAGES OF THE PROPOSED SYSTEM.**

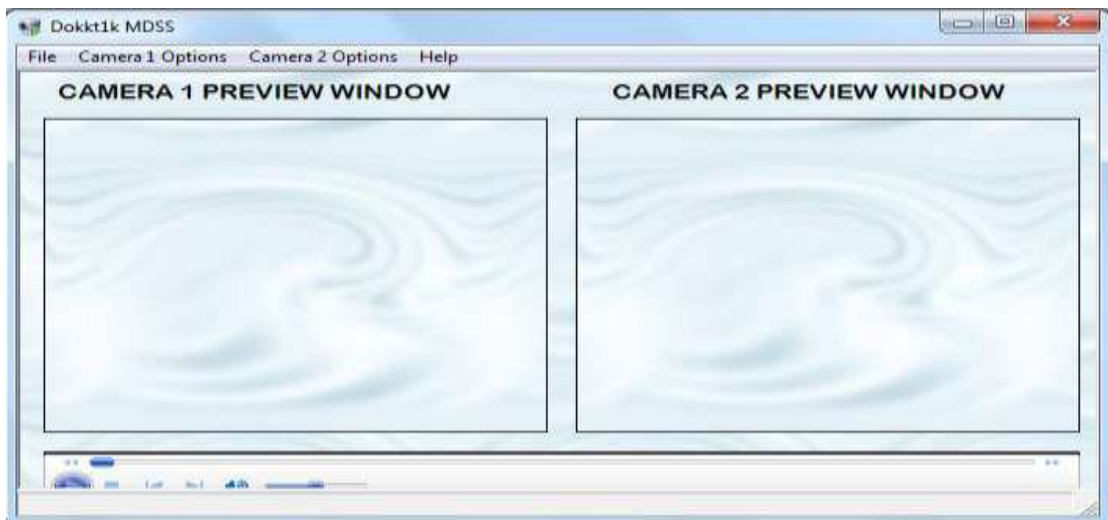
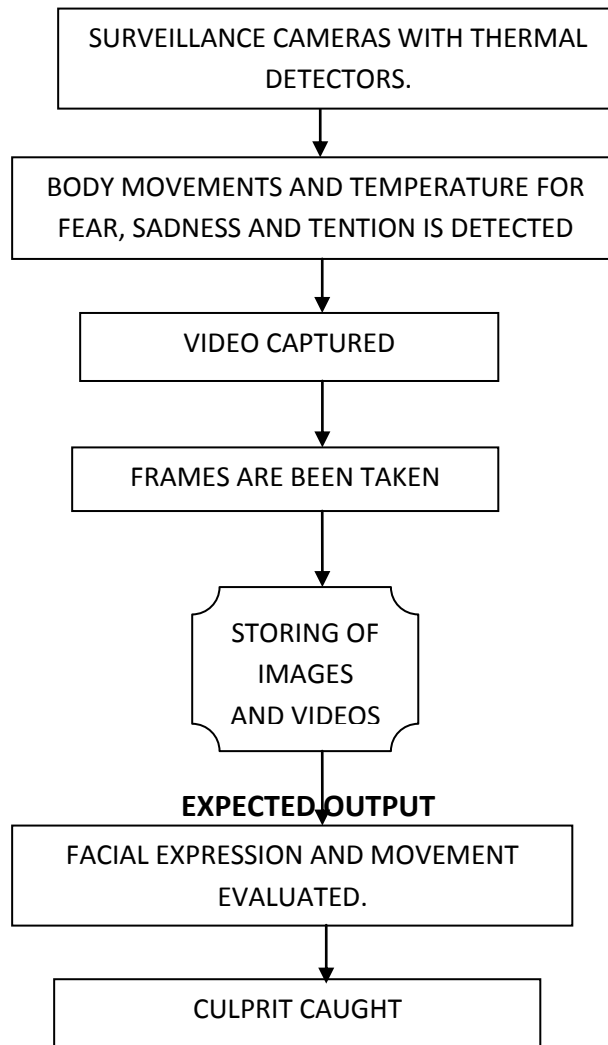
1. Use of cameras and computer system in monitoring eases stress.
2. Use of camera tracks and fastens the location of suspects.
3. Mounting of surveillance cameras ensures wide security coverage against exam malpractice.
4. Speakers assist in giving warnings to students so as to maintain orderliness.
5. No need for fighting when caught because the captured picture is evidence alongside the recorded video.

❖ **PROCESS OF OPERATIONS AND DATA FLOW DIAGRAM OF THE PROPOSED SYSTEM**

A data flow diagram models object, associations and activities by describing how data flow between and around various objects. Data flow diagram is used to illustrate how data is processed by a system in terms of inputs and outputs. They are pipeline through which packets of information flow. Data flow diagram work on the premise that for every activity these are some communication, transference or flow that can be described as a data element.

Data flow diagram describes what activities are occurring to fulfill a business relationship or accomplish a business task, not how these activities are to be performed. It shows the logical sequence of associations and activities, not physical processes

FLOWCHART FOR SURVEILLANCE AND MONITORING SYSTEM





SUMMARY

It can be concluded that the proposed system can be very useful for the monitoring of students during examinations. It can be very useful to reduce the burden on the exam administrators. This system can play important role in current world of education. So, this system -**"To develop a system to automatically detect suspicious activity during examination."** can serve as a useful surveillance system for tertiary institutions. For a tertiary institution to progress and bring examination malpractice to a zero percent level, the surveillance and monitoring system can be a reliable and adequate system that provides a conducive and safer environment for the students and staff. Surveillance is an essential tool to ensure this objective. Overages, the human operative type of Surveillance system has been in use by the tertiary institutions in Nigeria. As its name implies, it involves fully involving and engaging the members and staff of tertiary institutions to conventionally and manually carry out their manual patrol and supervision during examinations. This system has brought a lot of setback to tertiary institutions, education sector and the

entire Country in general. The proposed system will create a better way to ensure a conducive and safer atmosphere for examinations and reduce examination malpractice. The surveillance and monitoring system is an application built on the .NET framework with C#.

CONCLUSION

The study has established that the Surveillance and monitoring system would require less resources for it to work as expected because of the motion detection principle. The system will only record when it detects motion, thereby, avoiding storage of unnecessary "dead air" clips. This system will also alarm and notifies the operator of motion so that he will be aware of an activity in the site being secured. The system is successfully and completely implemented. Therefore, at this stage the system is ready for the end users to start operating. The user's manual is also prepared which is sufficient to give user full instructions of how to use the system. In comparison with the current application of related features, such as the Spy Cam, baby cam, Level 2 multi camera application, camera Bison, and even with the most popular CCTV, this system stands a chance in the market, as it is more flexible, and gives a better management opportunity than the current market applications. Its features, like the video compression, and detecting motion before it starts recording footage, put it at a better leverage than other systems. Another advantage is that, storage media, time and energy are saved all in one simple package. This paper therefore, sustains that the system is an improvement and achievement added to security. This paper took enough time to explore the concept of Surveillance and the activities of the staff and members of tertiary institutions and devise a better way to ensure a Crime-free and safer environment for the good students and institutions. A better solution to the bottlenecks of the current surveillance system that is in use by tertiary institution was discovered in order to improve the activities of the institution. The Implementation of the Surveillance and monitoring system with all its functionalities will go a long way to improve the present condition of the tertiary institution and will go a long way to ensure a safer and conducive environment that is Crime-free and zero malpractice level.

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