Research on College Lab Materials Theft Alarm

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Abstract - **The use of number of personal mobile devices like college lab material, palmtop increasing day by day. Peoples are addicted for the use this device. The most popular device is the college lab material, which is not only very expensive but also very important for the user because it contains a lot of personal information and data. If this college lab material is lost or stolen, then it not only economical loss of user but also loss of very important data. To recover a stolen or lost mobile device, it is very tedious job to manually locate a lost or stolen device. One of the methods is to lounge a police complaint but it takes too much time to recover, sometimes it is impossible to return lost devices. In this project, the analysis of available method for theft protection and location tracking analyze finding out which will be best suitable method.**

Index Terms - **location tracking analyze, college lab material, palmtop, lost or stolen device.**

I.INTRODUCTION

Boost in a numeral of great stores that present unobstructed admission to a range of foodstuffs armed forces the manufacturer to build up new explanation in the neighbourhood of sanctuary system. The most important necessity set used for all anti-theft system is to consent to a purchaser to have an unswerving speak to with the commodities. Solitary of the majority well-liked anti-theft know-how used in profitable construction is recognized as the Radio-Frequency Identification (RFID). Systems based on RFID use the wireless identification functionality. The command for anti-theft coordination is growing not merely in a container of marketable amenities. Along with the expansion of tutoring and technical development, school and university use an additional and more luxurious tool, which is straight second-hand by student through laboratory lessons. Owing to the numeral of scholar, the supervise instructor does not encompass jam-packed be in charge of larger than every individual and apparatus. An anti-theft organism that monitors the attendance of laboratory utensils would permit the educator to centre more on labour by means of student. The major aspire of the scheme was to devise and generate an apprehension organism that possibly will defend laboratory tools alongside robbery. The anti-theft system based on RFID fulfils the requirement related to free access to laboratory equipment and can automatically protect it against theft at the same time. This technology has already been implemented in commercial facilities, but it is very expensive and inaccessible for an average user. The proposed system constitutes an alternative to such solutions and retains all of their functional features.

II.LITERATURE SURVEY

A. Closed Circuit Television (CCTV) System
The CCTV camera have be organize at length in spaces similar to subdivision provisions, minute foodstuff, shopping malls, educate community, inside municipality and settlement monetary establishment and so on. This knowledge has to the highest degree enhanced safety measures and examination job in hectic spaces and smooth inaccessible setting. Nevertheless, install CCTV is relatively cost difficult and as such organization are slowly broken up concentration to additional reasonably priced knowledge in conditions of cost efficiency.

B. Barcode System
Barcode encompass perpendicular black bars inaccessible by pallid gap that are prearranged in corresponding appearance. Present are broad and thin extent that are prearranged base on a prearranged code

to assign a matching figure and representation. Barcode in sequence are understanding writing and decode by means of a laser from a visual scanner. Even if they come into sight indistinguishable in corporeal intend each barcode position for distinguishing code in the register of thing.

C. Optical Character Recognition

It is an request that mechanically scan typescript by means of visual piece of equipment. The majority necessary advantage of optical character recognition (OCR) scheme is the information so as to it permit the alteration and luggage compartment of scan text in pdf or representation fie beginning camera into editable or text. The neighbourhood anywhere OCR has be extensively deploy include instructive division, administration (public) organization, and bank organization. For case in point, in the bank segment, OCR is used to procedure check in regulate to steer clear of person omission and hold up paper employment digitalization. Nonetheless, positive drawbacks or limits are set up by means of OCR as a consequence of the family member towering price tag of eminence mechanism and the underprivileged superiority of text scan, which frequently bestow out sound and indistinct typescript.

D. Biometric System

The conservative method of recognition in conditions of individuality (ID) cards, individual recognition numeral (PIN), or code word, has established not to be dependable for tenable safety underlying principle. An option and feasible know-how so as to uses an exclusive physiological and behavioural mannerism for recognition or substantiation has been extensively second-hand for tenable security principle. This equipment is acknowledged as biometric arrangement. These exclusive characters are: fingerprints, faces, irises, retinal patterns, and hand over geometry, hand writing, signature, palm printing, and voice. A quantity of biometric system can use only particular trait in such case they are describe unimodal biometric organism. Others can unite additional than one trait in such container they called multimodal biometric organism. Characteristically, biometric organism consists of the subsequent subsystems: sensing, characteristic, removal, and pattern corresponding and production. Its process is on the whole of two phases, which are: enrolment and acknowledgment

E. Smart Card

Elegant card is information storage space organization that has microchip that provides supplementary compute competence which is entrenched into an artificial enclosed space. It has programmable reminiscence for video recording consumer distinct information. Elegant cards are able to be categorizing in conditions of their reminiscence and included memory chip. Information defence from robbery is achieving by encryption apparatus. as well, bring up to date of information be able to be attain when new submission is complete obtainable to the community smooth following purchase by consumer. They are extensively second-hand in monetary division for creation fewer luxurious and tenable monetary deal. Nonetheless, maintain this expertise is luxurious, and as well, it is susceptible to be dressed in, decay, and grime.

III.SYSTEM IMPLEMENTATION

Existing System

The stipulate for anti-theft scheme is greater than ever not merely in a container of profitable amenities. the length of with the enlargement of edification and technical advancement, educate and university use supplementary and more luxurious tools, which is unswervingly used by scholar throughout laboratory lessons. Owing to the figure of scholar, the supervise educator do not contain full manage in excess of every being and piece of equipment. Anti-theft organizations that monitor the attendance of laboratory tools would permit the educator to center additional on work by means of scholar.

Disadvantages

1. Due to the numeral of student, the supervise educator do not contain full manage over every being and machine.
2. university absent use additional and more luxurious tools

Proposed System

The major aspire of the development be to intend and generate an apprehension organization that might look after laboratory tools alongside burglary. The anti-theft organism support on RFID fulfils the prerequisite associated to free of charge right of entry to laboratory tools and can mechanically defend it next to stealing at the similar occasion. This expertise has by now been

implementing in money-making amenities, but it is very luxurious and out-of-the-way for an standard consumer. The future organization constitutes an option to such solution and retains all of their practical skin tone.

Advantages
1. RFID fulfils the prerequisite connected to gratis right of entry to laboratory tools
2. These constitute a substitute to such explanation and keep hold of all of their useful facial appearance.

Proposed Architecture

Implementation

The concept of the proposed anti-theft system requires a modular structure. The sensor is located on a laboratory station. Protected objects (like e.g. an oscilloscope or a measurement board) are placed within a range of the sensor. The sensor periodically checks the presence of the objects and reads the unique codes of their RFID transponders. After receiving a request sent from the control panel via RS-485 interface, the sensor sends information about the monitored object. The sensors are connected in a network with a bus topology compliant with a standard RS-485 interface. The sensor module consists of two components: a MP01611 reader compatible with RFID UNIQUE 125 kHz, and a logic circuit that receives the data sent by the MP01611 reader through the UART interface. The control panel is located near the teacher's desk, at a place which is difficult to reach.

The state of sensors network is periodically checked by sending requests to each sensor. Information received from the sensor (read code and RFID transponder information about the presence of the protected object) is stored in the memory unit. The control panel makes a decision about the emergency situation, e.g. absence of the protected item within the range of one of the sensors. The alarm situation is signaled via sirens and optical cameras, which register the potential thief. The user can access status information and system configuration through a personal computer (PC) application. The main block providing the system functionality is composed of a microcontroller with the integrated headquarters interfaces (VCP, RS-485). The microcontroller communicates with the control panel through the sensor network and the PC, and controls the operation of other components (e.g. camera, siren). The PC acts as a security system keypad. The system administrator can program the operation of the control panel. Moreover, the PC creates a database of unique numbers of RFID transponders which are used to identify the protected objects. The database makes it possible for the PC application to inform the system administrator about the protected devices located within the range of the sensors. Another purpose of the application is to inform the academic staff about the cause of the alarm. This way, the teacher is able to effectively and quickly identify the stolen property and the thief. An event of theft, with its date and time, is recorded in a file. The software allows the teacher to preview the status of the protected objects, even if they are temporarily absent. PC is connected to the control panel through a USB interface configured to emulate a serial COM port (Communication Port). The monitored facilities are marked with RFID UNIQUE flat stickers transponder. A small communication range (10 cm) enables fast and effective detection of undesired changes in positions of the objects. The transponder s' numbers may be read by the PC application.

IV.CONCLUSIONS

The paper presents a fully functional alarm system for academic laboratory. The anti-theft system monitors laboratory equipment and signals incorrect placement or absence of the monitored objects. Affordable price of the components allows for the use of the system in most academic laboratories. Such solution allows the

teacher to fully focus on students and conducted classes.

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