International Journal of Pure and Applied Mathematics
Volume 116 No. 9 2017, 359-363
ISSN: 1311-8080 (printed version); ISSN: 1314-3395 (on-line version)
url: http://www.ijpam.eu
Special Issue

ijpam.eu

IMPLEMNTATION OF ROBOT VISION TECHNOLOGY TO CLOSED CIRCUIT TELEVISION

[1]R.Kavitha, [2]G.Kavitha, [3]katkuri Kumar
[1,2]Assistant.Professor, [3] Student
[1,2,3,]Department Of Computer Science And Engineering,
Bist, Biher, Bharath University, Chennai-73, Tamilnadu, India
[1]kavithar.cse@bharathuniv.ac.in, [2]kavithag.cse@bharathuniv.ac.in

Abstract: Normally working of cc- tv (closed circuit television) is to record the visual things like objects, human moments etc., in general cc-tv used to record the things which are comes under its lens (or area) those footage will be captured and it will records the footage and stores into its memory location . This paper discusses about the security improvement which are needed for cc-tv in future generation. In this paper i am going to discuss what are the technology to be implemented in cc's for future security and their working.

Keywords: cc-tv (closed circuit television), technology, image processing, dimensions, objects, interaction.

1.Introduction

Now-a-days normally cc-tv's are used everywhere in the society. The working of cc-tv is used to capture something and store the things into the memory. It will capture the things which come under its radius (focus length is based on their technology).capturing the footage takes place in 2d and 3d (d – dimensional). 2d will capture the images objects etc., where as 3d captures the 360degrees view but, it is very difficult to capture in 3dimensional view[1-2]. Generally cc-tv's required a third party as human interface to notice the action which is going in front of the cc-tv it won't recognize what is happening their either it won't make any alert message without human interaction. So[3-4], to overcome this drawback here we are going to add some additional features and technology to the cc-tv to make it more efficient and more security without any human interaction. Which means it will automatic recognize the particular action and pass an alert message to the control room.

Here we are estimating the technologies of robotic eye vision technology [5-6], maps, and connectivity between the one and other cc's and connection to the

monitoring room. Robotic eye visionhas the ability to read the moment and it has the ability to recognize the actions performed in front of it[7-8]. Some set of actions are already pre- designed by the user in their code so these robots will check the similar actions in their grammar and produce the output if there is any matching action is found else nothing.

Maps are used to now the location of the cc-tv's to easily identify where the action is done. Other connectivity technologies are interconnect one cc to the other cc's and all connected to the one monitoring room. Firstly we discuss about the cc-tvtechnology[9-10]

i) Closed circuit television (cc-tv) technology

Cc is an video capturing process and display the video through a single wire to the monitor room where the video is Cc's will capture the motion in 2d and 3d basically cc's surveillance is fixed to a wall or top of the roof etc., places these cc's will stay at same position and they capture the video/images which comes under its area (under its lens)

ii) 2d closed circuit

So, here the above diagram show the working of a closed circuit television in 2- dimension in this 2d the cc will be constant and covers the area up to its range in straight direction the objects which comes under its lens or range those will captured and monitored and remaining area won't be covered.

iii) 3d closed circuit

Here, the above diagram shows the working of a closed circuit in 3d in this the cc will covers the 360 degrees as shown in the figure[11-12], but there is a drawback that it multiple video capturing is very difficult. In that case they implemented the rotate model closed circuit surveillance of 360 degrees the camera lens is of 2d but the body rotation makes it has 3d. Which makes its to cover entire surrounding of 360 degrees.

1.1 Vision Technology Used In Robots

In robots the object capturing is done by 2d and 3d. Where 2d is used for the object capturing and 3d is used for the human being recognition[13-14], moving objects recognition etc will be done these robotic vision can perform a series of different tasks.

- Measuring

- Reading barcodes & scanners
- Engine part inspection
- Packaging inspection
- Wood quality inspection
- Surface inspection
- Guidance & checking orientation of components and pieces
- Inspection for defects
- Robots vision works in two simple steps they are:
- Imaging
- Image processing
- Imaging do scanning in 2d and in 3dwhere as,

1.2 Image Processing

Working of an image processing is after detecting the object or image the robot process it or it will think about it for instance it finds and detects edges of the image or object. It counts pixels, discovers and manipulates the image or object according to its programming and recognizer pattern according to its programming based on its algorithm.

So, till now we have seen intro about both cc surveillance and robot vision technology my aim is to add the robot vision technology to the cc surveillance to run smarter in the future as i discussed in the abstract[15-16]. Let's now brief about both the technologies.

1.3 Cc-Tv Technology

Early i mentioned the closed circuit television is also known as video surveillance is used as the video camera to transmit a signal to a specific monitor place it is not a broadcast type.it transmit signal through point to point (p2p), point to multipoint (p2mp), mesh wired or wireless links.

1.4 Technology In Cc:

In earliest video surveillance the system/computer involved in constant monitoring because there was no storage information or recording. Later they implemented "reel-to-reel" media was introduced which was used to record the footage but this was failed because constantly we need to change the reel when storage gets full the data can't be erased this was the major disadvantage in this model. Next in 1970's vcr technology was introduced it is easier to record and erase the data. In 1990's digital multiplexing was developed to allow several cameras to record at once.later the cc's get connected to the network system they introduced many functions to it like alarm, scanning etc., and also they implemented the vision technology to the cc-tv surveillance which is used to identify the action in front of it but it is difficult to recognize the actions of several thing at same time with these camera lens.

Because these cc-tv surveillance required additional features and required a person to monitor these[17-18]. Were as robot vision technology has the capability of recognize multiple objects and their actions, they can identify the action without any third party interaction through their programming database.

1.5 Robot Vision Technology

Vision innovation has turned into a basic part for some robot applications, empowering robots to be sent into new zones. Throughout the years the innovation has developed ending up noticeably exceptionally dependable, with higher execution and evaluating has dropped drastically [19-20]. In the process vision has turned out to be acknowledged and grasped by many organizations who see the esteem it conveys to their operations; esteem as enhanced item quality, all the more assembling adaptability and higher throughput. While giving robots eyes doesn't make them mindful [21], it enables them to perform basic operations in ways that drastically enhance their execution. For instance, robots guided by vision can find parts to be grabbed, figure out where to apply a weld, review parts that have been collected, figure out where to put a section. The conceivable outcomes are huge.

1.6 How It Works

Common vision frameworks comprise of organized lighting, a camera with focal point, a processor (now and then installed in the camera) and vision programming. Organized lighting guarantees the picture the camera sees is steady and doesn't fluctuate with the earth. The focal point gives center and how extensive a zone the camera sees. The camera catches the picture and sends it to the processor. The processor changes over the picture to computerized signals. The vision programming translates the advanced flags and gives the robot helpful data.

- Part location
- Part identification
- Part sortation
- Flexible parts feeding
- Presence / absence
- Error proofing
- Inspection
- Augmenting vision systems
- Environmental perception

- 2d and 3d vision
- Camera mounting
- Results

All the above points of (robot vision technology) working is done by themselves through their algorithm and programming.

1.7 Working Of Closed Circuit Tevevision By Adding Robot Vision Technology

Normally cc work is to capture the objects and it is identified by the monitored person, where as the robot vision technology it will recognize and detect the object with the help of their programming and algorithm.

Here, we are going to make some changes to the cc-tv's by adding or replacing its camera. Replace the camera with the robot vision camera which has the capability of identifying the objects without third party.

Making some changes according to the cc-tv functions in the robot vision by modifying its algorithm and its program to think according to the working function depend on the purpose, next make all the cc-tv's connected to the network and next make interconnections between the cc's according to the user need and have a connection to the monitor room to easily identify the camera location through the maps.

Example

Two persons are running faster than the normal speed the robot vision will first capture the video and identify the object, if the object action is matched by its program it will automatically calculate the speed of persons and compare the average speed if its higher than the average speed it will automatically send the information to the monitoring room through the alarm and highlight the action clip in the system in monitor room backend this process will run and side by side it will capture the ongoing actions and these information is shared by the interconnected cc-tv surveillance to recognize them if they come in front of your focus and generate an alarm to the monitor room.

1.8 Advantages

- Multiple iSimultaneously it can read the actions of multiple objects.
- It will automatic detect the action through its database.
- This technology has the ability to detect the multiple actions and send information to the monitoring room.
- There is no need for any third party to monitor these cc's.

1.10 Disadvantages

- It is more expensive than normal cc-tv's.
- It required huge amount data(in terms of internet and memory).

2. Conclusion

In normal cc-tv surveillance multiple objects cannot be identified at single time. In this objects can be detected one after another. So, here using robot vision technology we can detect multiple objects actions and their behavior at single time. Through this technology we can reduce the crime rate in society.

References

[1] N. Bouabdallah, m.e.rivero-angeles, and b. Sericola, "contin-uous monitoring using event-driven reporting for cluster-based wireless sensor networks," ieee trans. Vehicular technology, vol. 58, no. 7, pp. 3460-3479, sept. 2009.

[2] M.i. brownfield, k. Mehrjoo, a.s. fayez, and n.j.davisiv., "wireless sensor network energy-adaptive mac protocol," proc.thirdieee consumer comm. And networking conf., pp. 778-782,jan. 2006.

[3] T. Zheng, s. Radhakrishnan, and v. Sarangan, "pmac: an adaptive energy-efficient mac protocol for wireless sensor networks," proc. 19th ieee int'l parallel and distributed processingsymp., pp. 224-231, apr. 2005.

[4] S.c.ergen and p. Varaiya, "tdma scheduling algorithms for wireless sensor networks," wireless networks, vol. 16, no. 4, pp. 985-997, 2010.

[5] G. Lu, b. Krishnamachari, and c. Raghavendra, "an adaptive energy-efficient and low-latency mac for data gathering in wireless sensor networks," proc. 18th ieee int'l parallel anddistributed processing symp., pp. 224-230, apr. 2004.

[6] Udayakumar r., kaliyamurthiek.p., khanaa, thooyamanik.p., data mining a boon: predictive system for university topper women in academia, world applied sciences journal, v-29, i-14, pp-86-90, 2014.

[7] Kaliyamurthiek.p., parameswari d., udayakumar r., qos aware privacy preserving location monitoring in wireless sensor network, indian journal of science and technology, v-6, i-suppl5, pp-4648-4652, 2013.

[8] Brintharajakumari s., nalini c., an efficient cost model for data storage with horizontal layout in the cloud, indian journal of science and technology, v-7, i-, pp-45-46, 2014.

[9] Brintharajakumari s., nalini c., an efficient data mining dataset preparation using aggregation in relational database, indian journal of science and technology, v-7, i-, pp-44-46, 2014.
[10] Khanna v., mohanta k., saravanan t., recovery of link quality degradation in wireless mesh networks, indian journal of science and technology, v-6, i-suppl.6, pp-4837-4843, 2013.
[11] Khanaa v., thooyamanik.p., udayakumar r., a secure and efficient authentication system for distributed wireless sensor network, world applied sciences journal, v-29, i-14, pp-304-308, 2014.
[12] Udayakumar r., khanaa v., saravanan t., saritha g., retinal image analysis using curvelet transform and multistructure elements morphology by reconstruction, middle - east journal of scientific research, v-16, i-12, pp-1781-1785, 2013.
[13] Khanaa v., mohanta k., saravanan. T., performance analysis of ftth using gepon in direct and external modulation, indian journal of science and technology, v-6, i-suppl.6, pp-4848-4852, 2013.
[14] Kaliyamurthiek.p., udayakumar r., parameswari d., mugunthans.n., highly secured online voting system over network, indian journal of science and technology, v-6, i-suppl.6, pp-4831-4836, 2013.
[15] Thooyamanik.p., khanaa v., udayakumar r., efficiently measuring denial of service attacks using appropriate metrics, middle - east journal of scientific research, v-20, i-12, pp-2464-2470, 2014.
[16] R.kalaiprasath, r.elankavi, dr.r.udayakumar, cloud information accountability (cia) framework ensuring accountability of data in cloud and security in end to end process in cloud terminology, international journal of civil engineering and technology (ijciet)
Volume 8, issue 4, pp. 376–385, april 2017.
[17] R.elankavi, r.kalaiprasath, dr.r.udayakumar, a fast clustering algorithm for high-dimensional data, international journal of civil engineering and technology (ijciet), volume 8, issue 5, pp. 1220–1227, may 2017.
[18] R. Kalaiprasath, r. Elankavi and dr. R. Udayakumar. Cloud. Security and compliance - a semantic approach in end to end security, international journal of mechanical engineering and technology (ijmet), volume 8, issue 5, pp-987-994, may 2017.
[19] Thooyamanik.p., khanaa v., udayakumar r., virtual instrumentation based process of agriculture by automation, middle - east journal of scientific research, v-20, i-12, pp-2604-2612, 2014.
[20] Udayakumar r., thooyamanik.p., khanaa, random projection based data perturbation using geometric transformation, world applied sciences journal, v-29, i-14, pp-19-24, 2014.
[21]Udayakumar r., thooyamanik.p., khanaa, deploying site-to-site vpn connectivity: mpls vs ipsec, world applied sciences journal, v-29, i-14, pp-6-10, 2014.
[22]T. Padmapriya and V. Saminadan, “Improving Throughput for Downlink Multi user MIMO-LTE Advanced Networks using SINR approximation and Hierarchical CSI feedback”, International Journal of Mobile Design Network and Innovation- Inderscience Publisher, ISSN : 1744-2850 vol. 6, no.1, pp. 14-23, May 2015.