Development of Efficient Pedestrian Tracking and Recognition

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***Abstract* — The goal of the paper is to develop the efficient pedestrian tracking and recognition system. In that we track the activities of the objects which are moving and non -moving. The proposed system detects the objects by using various sensors and closed circuits cameras. In this paper we consider the motion-tracking problem. By prior knowledge on the dynamics of object distribution, their density estimation could be learned in an adaptive to support effective sensor placement.**

***Keywords* — Closed circuits cameras, dynamics of object distribution, efficient pedestrian detection, sensor placement.**

I. INTRODUCTION

In recent years tracking of object becomes very important issue due to security purpose . Monitoring & recognizing objects or any mobile activity in outdoor scenes requires reliable & efficient tracking system. Here the base of tracking is blobs i.e. segmented foreground. But there is some loss in information in the tracked entities due to its simple representation technique [1].

One of most effective way to track objects is adaptive sensors placement. Due to that it is possible to recognize & identify one & more individual objects. Sensors placement is very efficient way of tracking & monitoring objects. [2].

We can also track objects by using multiple cameras. In these years traditional closed circuit television (cctv) systems are over-whelmingly replaced by intelligent video surveillance system (IVS). The IVS systems are very keen in detecting object actively & they also gives alert spontaneously in various situations and after that the detected information by an IVS system are then immediately delivered to a central monitoring system or security guard in-charge .The switching technique of multiple cameras includes switching tracking to adjacent cameras when an objects crosses its view [3]. Variance-based radio tomographic imaging (VRTI) is also a one of the famous object detection technique it uses the signal strength variance caused by moving objects within a specific area of wireless network. Variance based radio tomographic imaging is an extension of radio tomographic imaging. The technique is also called as device-free technology. This technology is basically proposed for the low enforcement & emergency responders so that it gives a life saving benefits. By using this technique it is possible to detect the behind wall object so that the police & quick responders get intimation before they enter into the building or any place which is overlapped by walls [4].

Now-a-days there are various technologies are invented for the recognition of indoor and outdoor scenes. In earlier days security goes with a traditional approach of cameras and sensors. But in recent years the sensors are modified into various versions like thermal sensors and cameras. The working of thermal sensors is based on room temperature. So that environment temperature is recorded and set to that value as soon as any object enters into that environment the temperature reliably separates the object [5].

II. BACKGROUND

The background of the little concerns with the various detection and recognition techniques.This technique involves the use of cameras. Intelligent video surveillance(IVS) closed circuits, adaptive sensors etc. This various objects detection and recognition on their pedestrian tracking the name itself suggest that the tracking of moving objects and recognizing their activities.

III. PREVIOUS WORK DONE

Harini et al.[1] Proposed that the major cause of accident are the intersecting objects for that objects & entities is one real time incdent detection. It is hard to track in outdoor scenes due to the unpredictable nature of environment [1].

Zhen Guo et al.[2] proposed that monitoring mass object in a certain area is done by using boundary estimation , Boundary estimation technique is carried out by using a adaptive sensor placement is resource management . A resource management is used to determine sensor field. In limited number of sensors and their signal strength is necessary to improve detection accuracy [2].

Daw-Tung Lin et al. [3] proposed the collaborative pedestrian tracking and data fusion with number of cameras. In this closed circuit cameras and intelligent video surveillance (IVS) are the major parameters . The cameras are fixed in over-lapping and non over-lapping parts of indoor and outdoor objects so that to track each and every objects [3].

Joey Wilson et al. [4] researched on the inter-wall surveillance. The major parameter in this paper variance-based radio tomographic imaging (VRTI) [4].

Cristoba Curio et al. [5] researches in walking pedestrian recognition. This technique concerns with the classification of the body movement of the human and tracking them [5].

IV. EXISTING METHODOLOGY

Existing methodologies of pedestrian tracking and recognition proposes computer vision algorithms for intersection monitoring, adaptive sensor, placement and boundary estimation for monitoring mass objects, collaborative

pedestrian tracking and data fusion with multiple cameras . See through walls: motion tracking using variance based radio tomography networks, walking pedestrian recognition. The above said involves various technologies for detecting mass objects. In intersection monitoring intersection collision prediction problem is discussed. The accident rising situation are discussed in intersection monitoring.

V. ANALYSIS AND DISCUSSION

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Analysis shows that there is some lagging in monitoring the mass objects which are mobile although the device-free technology is introduced for the moving entities. But that is not sufficient at all. Putting the closed circuits(CCTV) or intelligent video surveillance (IVS) or any other technique is need to monitor by the human all the time. If it is not done then the closed circuits are become dummy technology which are useful only when all the program gets completed and at that time the purpose of monitor or watching the recording is to find the culprit. So for overcoming from these situations newer technology implementation is must.

VI. PROPOSED METHODOLOGY

For the effective tracking of mass object each and every movement of the mass object is needed to be captured. This section represents the tracking of pedestrian object in indoor and outdoor scene by using adaptive sensor placement and data fusion with multiple cameras. In that two technologies are getting merged into a single for effective tracking of mass objects. Adaptive sensor placement is placed in a particular boundary estimation

VII. POSSIBLE OUTCOME AND RESULTS

Our tracking system has works under a variety of weather conditions such as sunny, cloudy, snow, etc. The results of a track sequence are shown. The tracking sequence shown consists of a total of 44 frames with the results shown for frame number 986, frame number 1014, and frame number 1030. The lines behind the vehicles and pedestrians show the trajectories of the vehicles and pedestrians. The numbers on the pedestrians and vehicles are the track labels assigned to every tracked MO. The tracker handles the occlusions between the cars very well as can be seen from the sequence. Shows occlusion handling between two vehicles. Tracking in a winter sequence is shown in while shows tracking in snow and shadow conditions. For the classification, matching values have been calculated by summing up the activation of the temporal dynamic fielded termined by model matching and texture analysis in the tracked area of the legs. Maxima of this curve indicate that the leg position reliably belongs to the models.

CONCLUSION

We have presented a new architecture for pedestrian recognition in urban environment with moving observer. The initial detection is base Done the integration of texture information, template matching, and the IPM. Texture information reduces the search space only to structured regions. The camera geometry supports the estimation of object scales in the image. A synthetic human walking model was generated for the localization of pedestrians. A multilevel tracking approach for tracking the entities in intersection scenes is presented. The two level tracking approach combines the low-level image processing with high-level Kalman filter based tracking. Combinations of position and shape estimation filters that interact with each other indirectly are used for tracking. The shape estimation filter serves the purpose of occlusion detection and helps provide reliable measurements to the position estimation filter.an adaptive sensor placement method according to the ML estimates of mass object locations. The proposed approach uses a GMM to capture mass characteristics of real observations and searches for the desired locations for sensor placement that could maximize detection probability.

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