FUTURE SENSORING AND MONITORING SYSTEMS FOR PUBLIC AREAS

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ABSTRACT

Humans have five basic emotions - ears, vision, touch, scent and taste are applied to primary biological sensors, such as ear, eye, skin, nose and tongue. Using these sensors, humans can make observations, gather data and enable it to usable information. However, there are practical limitations of the built-in data range and monitoring type of biological sensors, and are not appropriate for specific measurements. For example, an individual can have relatively rugged temperature monitoring about their immediate environment, but biological sensors are not able to do far-reaching accurate temperature studies in periods in severe situations. Internet of Things (IOT) has been changing the landscape of private-sector monitoring for some time, now thanks to the old technology like natural, video cameras for private sector surveillance for some time. But now IOT technology is cheaper and more efficient than ever, and the municipality has a chance to monitor and improve public space. This technology allows more privacy for people who are more monitored than traditional technology CCTV. An important part of urban planning is centering around cars, so traditionally, this kind of work that works with a lot of sensitivity driven technology is strictly contracts. But many individuals should look at transition-like biking, public transportation, walking, and riddishing-private and public institutions. People's movement is not a new concept. It helps companies do well for decades. But private companies such as Internet Things and Municipalities can take a stimulating thought approach to urban planning, and they can make changes in a real reality. Smart Cities is one of the solutions for approach the issues faced in the earlier stages.

KEYWORDS: Internet of Things, Sensors, Video Cameras, Smart Cities

1. INTRODUCTION

Monitoring is the most important field in the security system. Monitoring, managing, directing, or protecting people are usually a way to monitor behavior, activities, or other dynamic information. Surveillance systems are usually used in house, office, factory or vehicle surveillance and image identification, but this system requires high performance core, which acts against some benefits of low power consumption and low cost embedded systems.

Monitoring is very helpful to Governments and law enforcement to maintain social control, identify and monitor threats, and / investigate / investigate criminal proceedings. Home / office security systems have grown popular in recent years, and a home / office owner can find ways to protect their personal space and improve their home values. Because theft, theft and killing of large cities are changing, every homeowner should consider a home security system.

2. TRENDS IN MONITORING SYSTEMS

Researchers point out that their system uses fixed tools. The observation process is divided into three different phases: background subtraction, subject monitoring, and human recognition.

Background that separates the background view provided by the video feed from the background. By comparing the background model (without function) to display a new scenario in the video display, the computer can find objects moving. These objects (represented by groups of pixels) are separated from the background image and monitored. However, static background minus works well in controlled environments, and does not work as well as continuous changing environment, such as outdoors, and in this case, the researchers point out. Possible lighting conditions, shadows, and some of the wide range of issues such as street labels that can prevent the given individual view. "I can give you a system that operates in a controlled environment, but it's a big challenge on the outside," says Researchers. Hence researchers used a method based on a background modeling and mining technique, known as an anemometric kernel density evaluation, which can detect objects moving in outer environments depending on changes in the background, such as lighting.

2.1. Object Tracking

Implementing the computer to monitor real-time objects, people like the one they happen to be on a bus stop - researchers have created guidelines to authorize the pre-specified activities. Motion is directly extracted from an image queue, and the operating information is calculated using an Infinite Impulse Response (IIR) filter. Then, an algorithm compares these actions to other actions entered into the database, identifying the best competition, finding labels or classifying the activities accordingly.

Although this procedure is defined by its process database, it seems to guarantee a well-defined behavior,
As individuals enter the scene, the system provides each unique number and creates the database of these individuals. The existence of historical information for each goal is to leave the scene and then identify the returnees. The important aspect of this particular application is because the people involved in drugs at a bus stop may come.

2.2 Human recognition

The biometrics area has developed several methods for identifying specific individuals such as fingerprint and face identification. For the purpose of the bus stop monitoring program, researchers chose a short-term biometric technique-clothing color.

The system man's recognition module divides into three parts, similar to the head, nose, and legs of a person. By using the central color of each of these regions, you can quickly compare the two people to the same person. The disadvantages of this method are people who identify a dressed person, remove the clothes, and pass the shadows of deep shadows.

In fact, shadows are the most difficult challenge to work in this category. While researchers can face most of the problems with shadows, a survivor is an individual who stands in a shade wearing a black dress. It is also difficult to separate human corpse. Although most of the current literature and classical approaches do not provide any solution, he believes that there is improvement in this area.

Results of researchers' experiments showed that this system could be directly tracked individuals on external scenes at a particular time. The Human Recognition Process examined a test set of 21 people between three and nine images for each person (106 images total). By testing all possible combinations in this test package, algorithm proved to be 82 percent accuracy. When looking at a person's view, this system is very strong in manipulation of image size due to differential differences.

2.3 Future Projects and Insights

Future work to improve parts of the body, to identify people who have appeared in a scene earlier, to take the flow of light to help identify people who represent the head, nose, and legs.

The researchers’ notes that priority is to extend the system to recognize certain behaviors such as time stretching without jogging or a package that will be nothing other, especially the Department of Homeland Security (DHS) research to diagnose security threats. The National Science Foundation, the manager of the DHS program, continues to work on the organization of the National Security Applications-particularly threatening. The plan is to establish this system at a traffic stop in Philadelphia in early 2005.

They also acknowledge that the threat or intimidation can be a serious problem. "For me this is a very important question, we have to answer, can we learn suspicious activities?" He says. One feature may be to find an individual's concern. This may be possible (using infrared technology by video cameras), it is difficult to worry about the fear of a person or the fear of a flight to perform terrorism.

If there are plenty of potential applications for such an organization, then raised issues. A large retailer can monitor customizable shopping behavior. Legal enforcement can see weak drivers. Auto insurance companies can analyze driving behavior. "As long as we have video feeds, someone is going to extract data using this information and where are we going where the tax ... is an important question for our society?"

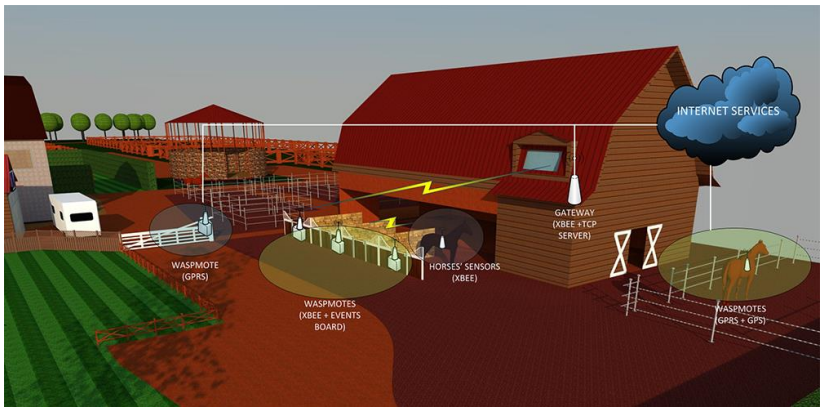

Fig.1 Smart Farming using Libelium Hardware

2.4 IoT Based Smart Villages and other projects

Libelium and SmartDataSystem reached a deal that provided IoT tools with Libelium hardware and SmartDataSystem software solutions designed in small towns and cities. In the figure 1, The compiled product called Smart Village is available on the IOT market. Two companies' expertise and local authorities provide everything needed for a successful city infrastructure and environmental management. It is designed to manage facilities, renewable energy systems, smart buildings or environmental monitoring among other uses.

SmartDataSystem's Commercial Development Manager Angelo Ginini says, "We expect to meet small towns and villages with this alliance and to fully utilize solutions to cities with big cities and larger employees." Lighting management, air and water quality monitoring, and energy facilities control are the main concerns of local governments in small cities in improving civilian services. Smaller cities can get their facilities capable and they can easily consume their products through small investments in Iodic technology, which allows easy tracking of the data to be made to a standard decision. Public services can be improved by reducing environmental impacts, the largest tradition of IOT technology: the great democracy of urban administration.

2.4 India's Smart City projects with Monitoring using Sensors

Fig.2 India's Smart City Project

With the growing urban population and the lack of housing and multinational facilities, Indian cities need a future with the speed of world cities. So far, Indian cities have been systematically developed in all directions. The current government proposed 'Smart City' as a solution to this urban housing crisis. By 2022, one third of the towns will focus on providing a full-fledged future to create 100 smart cities across India. While the government is implementing a plan of this project, it is waiting for the solution of the city's infrastructure. It is an attempt to divert the idea of smart cities.

Fig.3 Smart City Mission

Smart cities go forward with the aim of confronting the problems confronting India's cities. These cities are motivated by technology and boost the growth of urban India. High quality standards, state art infrastructure, transport and employment opportunities. The current generation has realized, lives. Smart cities expect to use subtle information and communication techniques to optimize resources and save time. This will give citizens the power to distribute their home appliances far and give them the ability to communicate with foreign doctors for advice. Traffic jams are expected to be resolved, and citizens will get real-time information about the location of jams and public transport vehicles.

One of the features of smart cities is the optimal use of available sources. Sensors help us to make sure that we know when and where to save them. These sensors need to control, detect, and manage unnecessary use.

2.4.1 Water management

Currently, major cities waste 50% of water due to leakage. With the sensors mounted in each pipe, the water leak can be easily detected and edited before any loss. Besides, irrigation systems in public parks can automatically disrupt whenever water is found to save water.

2.4.2 Energy management

Sensors help in enhanced energy management at the Center for "Advanced Measurement Infrastructure (AMI)". Cities view the "smart meter" applications embedded in the phase measurement unit (BMU) sensors and communications module that provides two-way communication between consumer and supplier. For application service providers, it helps to verify the meter status before sending the repair team to respond to customer's call. These checks prevent the sending of the unwanted field to the client platforms. Consumer can provide real-time energy usage information in a way a user can understand very easily. Based on this data, users who wait for their energy bill at the end of the month can change the priorities and make more decisions for their use.

2.4.3 Smart Streetlights

There are no street lights in towns even when there is no action in this area. (Even during the day!). In addition, the authorities are very hard to find any error and stealing of street lighting. With sensors, no lights are blurred, and if there is a mistake in street lights, you can instantly receive a text message immediately.

2.4.4 Waste management

They will be notified when municipal officials are fully filled with sensors equipped with rubbish pots. The Netherlands is the first in the preparation of "intelligent pins" in the Netherlands, and the messages must be reported to the authorities by text messages if they do not have full details or any damages.

2.4.5 Transport management (smart parking)

Where to find the closest available parking slot, traffic can be reduced with sensors. Vehicle drivers receive information directly, so they can quickly find a free parking slot and save time and burn. A similar plan has been installed in places where San Francisco - 8200 locations are located in SFPark. This comment will be reflected in several states in the coming days.

2.4.6 Real-time pollution management

Censors mounted on poles can monitor the environmental air quality of the cities (AAQ). Citizens can track pollution concentrations in every street in the city or receive automatic alarms when pollution levels rise beyond a certain level.

3. CONCLUSIONS

In smart cities, the sensors, cameras, wireless devices, and data centers provide the network's key infrastructure, allowing citizen officials to provide fast and efficient services. Smart cities are so eco-friendly that they use fixed objects for building facilities and reduce energy consumption. The efficient use of technology enables the development of an efficient transport management system, improves health facilities, and helps build a robust communications network beyond the reach of all traders, people and middle and sub-national governments. Permanently connecting the urban environment as a citizen, the ability to manage public services, transportation management, garbage collection, waste disposal, irrigation systems, aid stopping, local authorities and the incident allows the government to communicate with the public.

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