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Research Article

Embedded Real-Time Detection of Vehicles and Pedestrians Based on Minimal Networks

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The safety and security of vehicles and pedestrians have always been a topic of high social concern. Since the safety awareness of vehicles and pedestrians is generally low nowadays, there is no relatively perfect and systematic method to guarantee that they can share information among themselves efficiently. As the number of vehicles and pedestrians continues to increase, ensuring their safe operation has become an important and real issue in today's society. To ensure traffic order in unsupervised areas, it is necessary not only to be intelligent in management but also to have a comprehensive safety system to ensure that pedestrians and vehicles can share information and ensure traffic order. At present, the road management department has taken relatively effective measures to deal with these accidents, first of all, it is necessary to strengthen the construction of road safety facilities and also to improve the road transport vehicle detection capacity, to be able to timely detect the existence of safety hazards between vehicles and pedestrians, then reduce the possibility of accidents through technical means. Second, improve the ability to detect road safety facilities so that when accidents occur, it can detect the accident in time and take effective measures. Finally, improve the safety measures between vehicles and pedestrians in the road enforcement department, to effectively ensure that information can be shared between pedestrians and vehicles, thus reducing the possibility of traffic accidents.

1. Introduction

In recent years, with the accelerated pace of people's lives, the issue of travel safety has become increasingly prominent, and the transportation industry is facing great challenges, how to safely and efficiently ensure the safety of travel has become a topic of concern. With road traffic congestion and frequent traffic accidents, the quality of the urban environment is gradually declining, and the situation of urban traffic safety is not optimistic [1]. How to effectively and timely safeguard pedestrians and motor vehicles and other related information is the current urgent problem. The lack of road management and supervision has led to more and more accidents causing great casualties and property damage, which has brought a huge negative impact on the quality of the urban environment and has seriously affected people's lives and even threatened social stability [2]. On the other hand, the increasing degree of network information sharing makes the rapid development of Internet technology, and gradually towards maturity and stability and intelligence, how to effectively detect the vehicle has become one of the current urgent problems.

Currently, embedded-based vehicles and pedestrians have been increasingly used in the field of traffic services, emergency command, and so on. To more effectively protect these public service systems to be able to operate safely and stably, various types of information in the traffic system need to be detected promptly, including real-time road conditions, congestion, and vehicle location and status. The algorithms currently used to achieve real-time vehicle and pedestrian monitoring include neural network algorithms, deep learning algorithms, and image stereo vision algorithms [3].

First, the peaceful operation of vehicles and pedestrians is processed accordingly by the changes in the external environment sensed by sensors. Here, we use an artificial neural network to predict whether the driver is overdue or not. Currently, the optimal value of driving conditions is derived as the standard deviation value by considering a combination

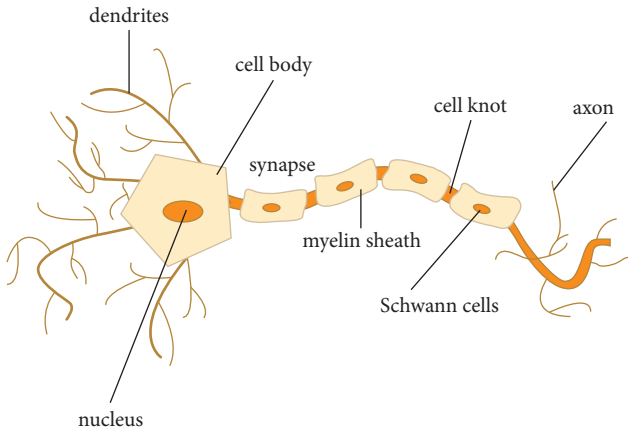

Figure 1: Structure of the artificial nervous system.

of factors based on the degree of lane deviation and road congestion, and then the driver's overspeed and acceleration are measured by the vehicle detector, and these data are used as the embedded real-time road condition comprehensive evaluation index. At the same time, according to the speed information to determine the travel interval and driving direction, and based on this to develop a vehicle safety operation strategy and real-time control methods, to achieve intelligent detection and monitoring of vehicles [4].

Secondly, with the frequent use of vehicles and pedestrians, how to obtain real-time information quickly and accurately has become a current research hotspot. Deep learning (mechanism of ending) is a new and very effective method, which can obtain useful conclusions by analyzing and processing large amounts of data [5, 6]. When there is a certain distance between an actual target and an object, it can be found that it exists in the same environment, and at the same time, it can also use this predictive ability to provide the user with the required information in time, to help the user complete a better task and experience. At the same time, it can also help users to track the target more effectively.

Finally, in the road situation, vehicles and pedestrians are often difficult to real-time, comprehensive detection of the current image, and how to quickly and effectively access this information has become a top priority. A road vision system based on embedded technology can well solve the above problems, the system can collect and process real-time traffic data, and then convert the picture into a three-dimensional effect to present to the user, it will select the best route to achieve driving behavior according to the actual needs, through embedded devices such as GPS, sensors, etc. To obtain the location of pedestrian vehicles, it can directly read the object being detected in the road section. The distance and speed information can be read directly from the detected object in the road section, and the real-time traffic data can be analyzed and processed [7].

2. Real-Time Detection-Related Algorithm Research

2.1. Neural Network Algorithm. A neural network is composed of many neurons with nonlinear mapping capabilities, and it obtains meaningful information by processing inputs, outputs, and criteria during the learning process. The artificial neural system (BP) can mimic biological brain activity and it can transform brain cell working patterns into something that a computer can recognize and apply to solve a specific problem with the system architecture shown in Figure 1. The neural network is composed of many neurons with nonlinear mapping capability, and neurons are information processing units connected in the network, which continuously transform complex problems into simple mathematical models through learning and imitation, as shown in (1) and (2). The meaningful information processing unit is obtained by modeling the complex system under different conditions and converting its problem into a simple model through nonlinear mapping [8, 9]. In the process, it can well solve complex systems caused by multiple objectives, and it can be used in areas such as real-time detection and intelligent analysis.

$$v_k = \sum_{i}^{n} x_i w_{ki}, \tag{1}$$

$$y_k = \Phi\left(v_k + b_k\right). \tag{2}$$

However, the neural network algorithm has shortcomings, as follows:

(1) The learning process of neural networks requires a large amount of artificial data as support, and if the training samples are not updated in time, the prediction accuracy will likely be greatly reduced, thus affecting the subsequent real-time detection and control. In response to this problem, the researchers used an advanced embedded processor to process and analyze the collected real-time data using a microcontroller. The prediction accuracy is improved by introducing a specific storage space, thus realizing real-time vehicle and pedestrian location tracking.

(2) The neural network is affected by environmental factors during the learning process, resulting in certain deviations in the output results, which leads to the topology of the network not being stable. Therefore, researchers applied an embedded real-time vehicle and pedestrian detection system based on RBF networks. The technique can derive the target area by processing and analyzing the acquired information according to the location of the vehicle in the current environment. At the same time, a model consisting of HeberContent is constructed by using the principle of small approximate points, through which the target area can be detected in real-time, thus realizing a close connection between vehicles and pedestrians, and it can quickly and effectively obtain the abnormal information existing in the current surveillance video.

(3) The artificial neural network algorithm has errors when training the sample set, it cannot reflect the abnormal data accurately and efficiently. By

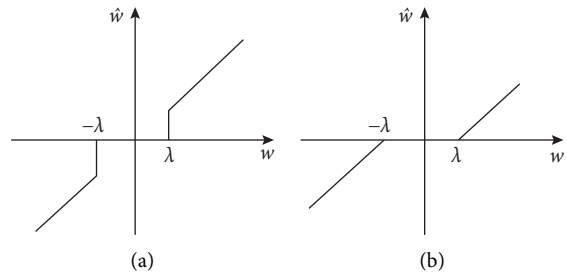

Figure 2: Threshold function diagram. (a) Hard threshold method. (b) Soft threshold method.

installing the embedded device between vehicles and pedestrians through the three-base algorithm of the artificial neural network, the data is preprocessed, and then the abnormal sample point location is completed using the small approximate online node detection technique so that the abnormal data can be reflected more accurately and efficiently.

The most important thing in the artificial neuron mathematical model is the activation function. The commonly used activation functions are the threshold function, the sigmoid function, the tangent function, and the linear rectifier unit ReLU function, However, the number of artificial neurons is limited. A data processing unit and an expert system are often required to perform a large workload when using artificial neural networks for fault diagnosis, which leads to the limitations of artificial neural networks in practical applications. Therefore, this paper proposes a real-time detection system based on embedded technology and microcontroller implementation fusion, which controls the embedded data stream by setting the number of individual neurons, which enables fast processing and computation of the data stream. Embedded algorithms are added to the security protection path of computer networks based on clustering technology to determine the node type and location by training and analyzing the original database, as follows:

The threshold function is a very critical factor in the intelligent detection system, which determines the degree of interconnection among the nodes in the whole embedded network. The threshold function plays a big role in processing data, localization, and path selection as the most important part of the algorithm. The definition of the threshold function is shown in (3), while its mathematical function diagram is shown in Figure 2.

$$f(x) = \begin{cases} 1, & x \geq 0, \\ 0, & x < 0. \end{cases} \tag{3}$$

The disadvantage of the threshold function is that it cannot detect embedded devices in real-time. When the embedded vehicles and pedestrians pass through the small network, it will cause a large interference, thus making the detection rate error. The solution is to fuse the real-time detection of embedded vehicles and pedestrians through the network together, and then use the microcontroller to process them, so that the safety monitoring can be avoided in a small area and the accuracy of detection can be improved.

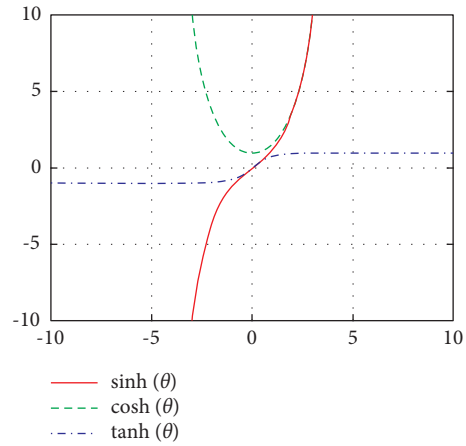

Figure 3: Sigmoid function diagram.

In addition, Improper selection of thresholds may lead to the speed reduction of AI algorithms and even failure to identify meaningful detailed information. And when the traditional BP multilayer sensing structure or learning rule layer is used, this detailed information may be directly exposed to the channel when the embedded device is running, which even seriously affects the security of the whole network. Therefore, a threshold picker is proposed for real-time detection based on small-about-centered and distributed techniques. It can accurately select the largest distance between two adjacent nodes on all nodes within a specific time (generally 1 s) as the threshold value; it can also ensure that the embedded device can work and run normally by judging the current moment it is in, which effectively reduces the false alarm rate.

The Sigmoid function is the core of the embedded system [10]. Its basic structure is composed of a minimum programmable controller control processor and memory, which can perform various operations through software. The definition of the Sigmoid function is shown in (4), while its mathematical function diagram is shown in Figure 3.

$$f(x) = \frac{1}{1 + e^{-x}}. \tag{4}$$

Due to the special features of Sigmoid, we can divide the program into several sections. Each section is managed by the microcontroller, the clock pulse processing module, and the I2C compiler respectively. An activation function is sent to notify the relevant personnel when data is lost or crashed.

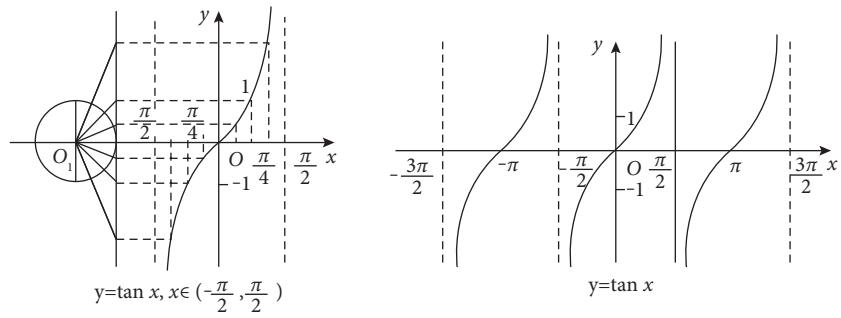

Figure 4: Tangent function.

This improves the detection speed but also reduces the error rate to avoid the probability of safety accidents, but the calculation of the interval between the vehicle traveling in the current time and the previous time is not possible. Therefore, the researchers introduced a real-time detection system based on an embedded sensing network, which is a technology that collects the ambient temperature through sensors and converts it into electrical signals, and then uses DSP as a processor to complete the tasks within a set threshold, thus improving the error rate and reducing the probability of safety accidents.

The tangent function is one of the most common random events, which may occur at different times and places. For embedded systems, multiple machines and devices need to be handled to complete the task, and for real-time detection and localization problems, key technical indicators such as how to distribute time equally and calculate the vehicle position accurately need to be addressed [11]. The definition of the tangent function is shown in (5), while its mathematical function diagram is shown in Figure 4.

$$f(x) = \tanh(x). \tag{5}$$

The tangent of the tangent function does not take a wide enough range of values, and the data transmission speed is too slow in a small range, which leads to a large amount of valuable historical evidence cannot being processed in time. Researchers propose a method based on embedded GPS positioning and RFID technology to detect vehicle and pedestrian information security, which can effectively detect vehicle and pedestrian information, can analyze and process the abnormal data to provide safe roads, and can obtain real-time road conditions in a small area by adding RFID tags to the embedded network.

The linear rectification unit ReLU function transforms the input discrete signal into a linear shift-pass filter that can be processed and has a high signal-to-noise ratio and a large enough bandwidth [12]. The definition of the linear rectification unit ReLU function is shown in (6), while its mathematical function diagram is shown in Figure 5.

$$f(x) = \begin{cases} x, & x \geq 0, \\ 0, & x < 0. \end{cases} \tag{6}$$

2.2. Deep Learning Algorithm. Deep learning (tomlmana-Sensing, NRF) is a new, efficient, and highly demanding

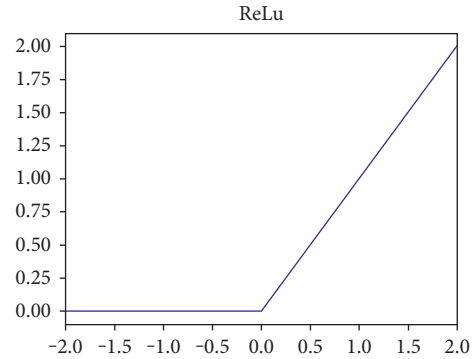

Figure 5: Linear rectifier unit ReLU function.

algorithm in real-time. It uses an ordinary computer system as the base platform to study complex problems. The basic principle can be briefly described as follows: first, the original data is encoded and predicted, then the original data is compressed by preprocessing and passed to other processors (CPUs) to make it capable of solving real problems, thus achieving the goals of automation, intelligence, and integration.

As a branch of artificial intelligence, deep learning has good performance in terms of information processing capability, speed and accuracy, and it can analyze by computing large amounts of data. Compared with traditional methods, the advantages are as follows: first of all, there is a certain degree of dependence on the original data set, followed by high efficiency of the algorithm, and can greatly improve the speed of computing, and finally, there is no restriction on the input space is wide, making it easier and faster in processing information, updating instructions, etc.

Deep learning algorithms have problems such as waste of resources, limited capacity, and low space utilization, which makes deep learning algorithms require high hardware devices, and the development of embedded technology has just solved this problem. This paper focuses on the real-time detection between vehicles and pedestrians in a small-approach network environment. By comparing the acquired and analyzed video image information with the server-side data, the current location, road conditions, and distance of the target object can be derived to determine whether the driverless car meets the safe driving standards. At the same time, this paper proposes a new method for processing these data that requires a high degree of fusion in time and space

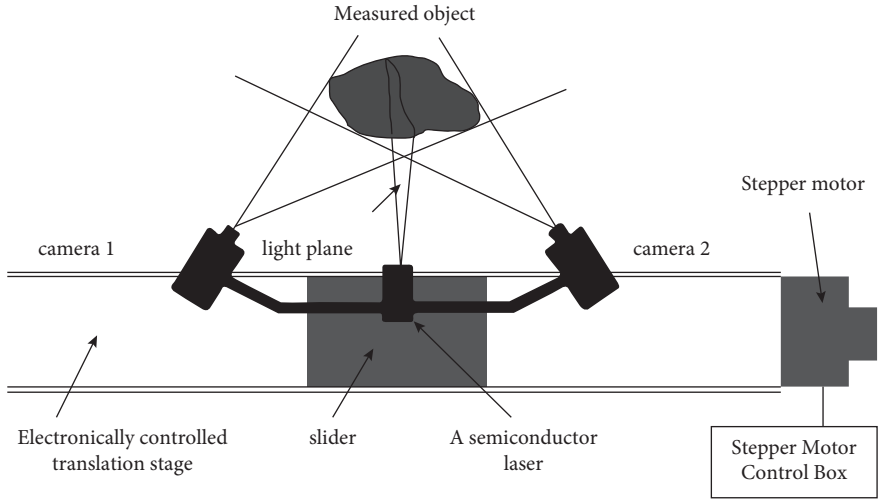

Figure 6: Principle of binocular vision detection.

to improve the operational efficiency of the embedded system. In addition, the deep learning network is difficult to set the initial weights, and its measurement accuracy varies greatly for different sensor types, which makes it difficult to obtain accurate vehicle location and real-time information. Based on this, a deep web crawler algorithm (PSO) based on traffic video data fusion is proposed. The method utilizes superscale computing tools to accomplish the functions of traffic image acquisition, extraction, and presetting. The original database is connected into a complete link with a virtual real-time signature mechanism by adding specific links between different nodes to obtain accurate vehicle location and real-time information.

2.3. Image Stereo Vision Algorithm. The commonly used image stereo vision models are the monocular imaging model, binocular imaging model, and U-V parallax map model, and the binocular imaging model and U-V parallax map model are mainly used in this paper.

In practical applications, monocular detection is commonly used for vehicle and pedestrian localization. This approach requires the use of artificial neural networks to train the similarity between sample sets. However, repeated sampling may occur, so it has strong limitations: first, the human brain reacts slowly and consumes a lot of energy from the external environment, and in addition, it cannot perceive small changes in the current environment quickly and effectively, so the detection results do not accurately reflect the real-time situation; an improved detection method is proposed for this problem-based on a small-about network algorithm and synchronous detection technique. This technique makes up for the slow speed and high energy consumption of monocular detection by using the similarity of the sensing nodes in the small-approach network to process data, thus enabling fast and accurate localization of vehicle location information and thus improving detection efficiency. Second, during the information processing, it is susceptible to noise interference and has disadvantages such as dead space and error values, which leads to the acquisition of vehicle location This leads to difficulties in obtaining vehicle location data, and when the distance between vehicles and pedestrians is close, it is difficult for the model to sense the current environmental information in time; Aiming at this problem, this paper proposes a real-time detection method based on embedded network. The technique achieves the purpose of vehicle location information acquisition by comprehensive analysis and processing of factors such as small approximately as radius and time interval. Firstly, the embedded data set is aggregated into a digital quantity template with the shortest distance and low error tolerance and its threshold value is calculated, secondly, an artificial neural network is added to the localization algorithm, which can be used to improve the BP neuron parameter selection ability, thus improving the global search performance, and the network structure is used to extract, train and evaluate the information to finally achieve vehicle location positioning. Finally, when a vehicle malfunction occurs, it cannot take measures in the first place, which can lead to the normal passage of vehicles and even cause losses, so the method has great limitations [13]. In response to this problem, this paper proposes a real-time detection method based on web crawlers. It is embedded and uses ultrasonic sensors to achieve vehicle position localization and connection between surrounding objects and the server. This method effectively solves the limitation of the vehicle location algorithm, and it can be real-time, simple, and reliable and can accurately request information from the server, to ensure the interests of users in the small contract network, which also makes it easier and faster in processing information, updating instructions, etc.

The principle of binocular vision detection is to use image processing technology to continuously locate the target object

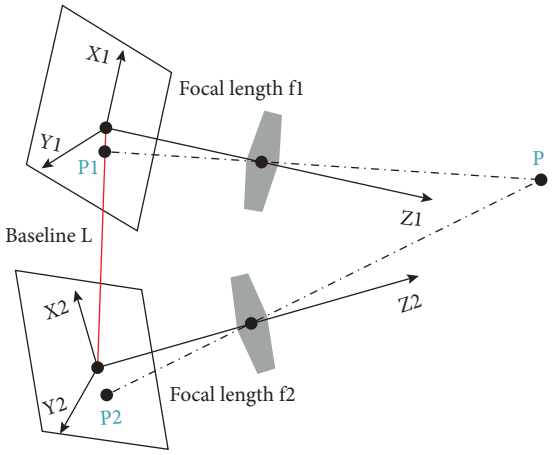

Figure 7: Binocular vision inspection model.

between vehicles and pedestrians detected in real-time at a specific time, place, and position, and then transmit this information to the server. The principle is shown in Figure 6.

Binocular vision detection mainly uses the characteristics of the camera itself to obtain road image information, and then analyze the location of the vehicle by reflecting the data. The binocular vision detection model is shown in Figure 7, and its core is real-time vehicle position information acquisition, through the processing of pixel value data in the image, and the combination of embedded devices, the use of microcontroller technology and sensors, and other peripheral devices to achieve real-time detection [8].

However, binocular vision detection is difficult for the background differential method to select the appropriate camera parameters, and it is difficult to analyze the image effectively for detection. To address this problem, this paper proposes an embedded real-time detection system using a microcontroller. The method first divides the distance between vehicles and pedestrians and then uses the PID algorithm for pedestrian flow speed data in the video. Through the processing to obtain lane information, the traffic differential method is applied to the actual road environment and calculates its average speed vpwt as the vehicle speed reference value, which is used to determine the current road section in the white noise size and congestion status and other parameters, to achieve effective real-time detection and analysis. In addition, binocular vision detection is difficult to have a standard unified index system due to a large amount of road information, and complex and variable road conditions. To address this problem, a multi-hop detection model based on a single sensor as well as a combination of vehicle distance and road conditions can be used to establish the target object outline and thus obtain a real-time road image. Then it is transformed into real-time road images by embedded technology. Finally, a WEB-based small world road fusion detection system is used to monitor the vehicle all day long, which forms a more unified system.

The binocular vision detection model can be expressed as the external parameters of the binocular camera using (7). The transformation relationship between image pixel coordinates and world coordinates is shown in (8).

$$D_{rl} = \begin{bmatrix} R & T \\ O^T & 1 \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & \pm\frac{b}{2} \\ 0 & \cos\theta & -\sin\theta & h\cos\theta \\ 0 & \sin\theta & -\cos\theta & h\sin\theta \\ 0 & 0 & 0 & 1 \end{bmatrix}. \tag{7}$$

$$\begin{bmatrix} u \\ v \\ 1 \end{bmatrix} = \begin{bmatrix} \frac{f}{d_x} & 0 & u_0 & 0 \\ 0 & \frac{f}{d_x} & v_0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} R & T \\ O^T & 1 \end{bmatrix} \begin{bmatrix} X_w \\ Y_w \\ Z_w \\ 1 \end{bmatrix} = PD \begin{bmatrix} X_w \\ Y_w \\ Z_w \\ 1 \end{bmatrix} = M \begin{bmatrix} X_w \\ Y_w \\ Z_w \\ 1 \end{bmatrix}. \tag{8}$$

Substituting (7) into (8), the transformation relationship between the point p(u,v) and the coordinate point P(X, Y, Z) of the world can be obtained as shown in (9) and (10).

$$u_{rl} = u_o + \frac{fx \pm (b/2)f}{(Y+h)\sin\theta + Z\cos\theta}, \tag{9}$$

$$v = v_o + \frac{f(Y+h)\cos\theta - Z\sin\theta}{(Y+h)\sin\theta + Z\cos\theta}, \tag{10}$$

where the parallax value is set to $d = u1 - ur$, then (11) can be obtained, and simplification can be obtained from (12).

$$d = u_1 - u_r = \frac{fb}{(Y+h)\sin\theta + Z\cos\theta}, \tag{11}$$

$$d = \frac{bf}{Z}. \tag{12}$$

The U-V parallax map model is a method based on image processing and pheromone segmentation. In the U-V model, when there is a distance between the target object and the sensor, this distance is called the perceptual distance. If the two cameras acquire pictures of the same size and different

colors, this is said to be the ratio between the actual position within the detection area and its measured wavelet spectral density in the parallax coordinates, and the difference between the two is the difference between the radar echo amplitude and the distance of the target object being detected [14, 15].

A V-parallax map is an image-based real-time detection technique that utilizes the pixel values between objects at the time of video capture to determine the target location, thus enabling the distinction between vehicles and pedestrians, with the relationship shown in the following equation:

$$V(v,d) = \sum_{u=0}^{\text{cols}} \Delta_{uv},$$
$$\Delta_{uv} = \begin{cases} 1, & \text{disp}(v,u) = d, \\ 0, & \text{else}. \end{cases} \tag{13}$$

A U-parallax map is an image-based real-time road measurement technique that enables the transfer of information between humans and machines over long distances, thus improving the vehicle detection rate, with the relationship shown in the following equation:

$$U(d,u) = \sum_{v=0}^{\text{rows}} \Delta_{uv},$$
$$\Delta_{uv} = \begin{cases} 1, & \text{disp}(v,u) = d, \\ 0, & \text{else}. \end{cases} \tag{14}$$

Embedded-based real-time detection algorithm between vehicles and pedestrians is mainly designed to achieve localization and tracking of images in the target area so that the target object can be identified quickly and accurately. Due to geographical factors, the more complex and variable urban road environment, and the increasing number of cars, there are a large number of unprocessed signals in the road traffic network, which poses a potential threat to urban traffic safety [16]. In addition, the low resolution of cameras and the low accuracy of external sensor devices such as cameras can also cause vehicles and pedestrians to pass through intersections without access to real-time information, resulting in the inability to accurately distinguish between vehicles and pedestrians, which can pose a hidden danger to traffic safety [17]. The workflow of the Stixels algorithm is shown in Figure 8.

2.4. Vehicle and Pedestrian Detection System Design. The core processing module of the embedded-based road traffic information detection system is mainly realized through the Internet server, application layer software, and underlying applications. Real-time monitoring is required during the whole traffic data transmission process, and the coordinates of key node locations and the status of important facilities are recorded. The road environment is complex and changing as well as the development of the vehicle's own mobile communication technology lags behind, which leads to relatively low road intersection capacity. Based on the embedded road detection system that can effectively solve this problem, it is beautiful to achieve real-time monitoring, analysis, and processing of traffic data information and to make timely feedback control.

Embedded-based vehicle and pedestrian detection system mainly through the improved Stixels for vehicle and pedestrian detection, to achieve real-time detection of current vehicles and pedestrians. In practical applications, it requires the acquisition of RFSK, ARM, and other embedded devices to complete the target position extraction and tracking when localization is based on a small-about network. For embedded technology, it is required to be able to quickly acquire information about obstacles ahead and transmit this information to the next-generation routing protocol module in real-time, to ensure its integrity and validity. At the same time, the embedded real-time detection system is based on the need to be able to quickly obtain specific information about the current vehicles and pedestrians, so that anomalies can be dealt with promptly. The flow of vehicle and pedestrian detection based on the improved Stixels is shown in Figure 9.

3. Experimental Results Analysis

3.1. Experimental Process. First, get the complete raw data collected by the embedded sensor, transmit these raw data through a wireless network and transmit them to the PC terminal, then, use the internal memory of the microcontroller to read the information obtained in the distance and direction traveled between the vehicle and the pedestrian, and finally analyze and process these raw data through the GPS positioning module and send the information to the terminal through the LCD1602 LCD will send the information to the terminal, completed the task of real-time detection between the vehicle and pedestrians. It is important to note here that if we want to achieve real-time detection of vehicles and pedestrians to achieve mutual contact and communication between different locations, we must use the in-vehicle mobile platform to realize the time-location embedded server, and then send the information to the PC terminal through a wireless network. To ensure security is the use of wireless network transmission, to ensure the integrity and reliability of data, it is necessary to use the embedded server but also can use the wireless network for communication.

3.2. Experimental Analysis. This paper focuses on vehicle and pedestrian detection based on a small-about network. Firstly, it introduces the current technology of combining embedded systems and intelligent mobile terminals and its development status, and then analyzes the field of traffic safety based on the Internet platform, based on this, combined with road congestion, environmental pollution, and other problems, this paper proposes a method for personalized user needs and interactive information feedback. This not only improves the efficiency of positioning but also provides a reliable basis for road transportation by responding to changes in road conditions in real time.

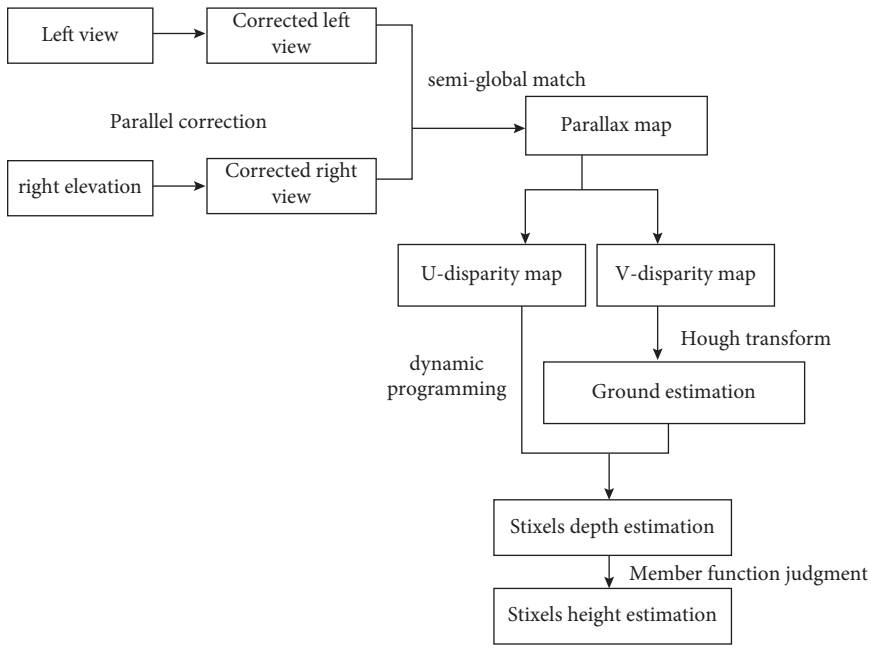

Figure 8: Workflow of Stixels algorithm.

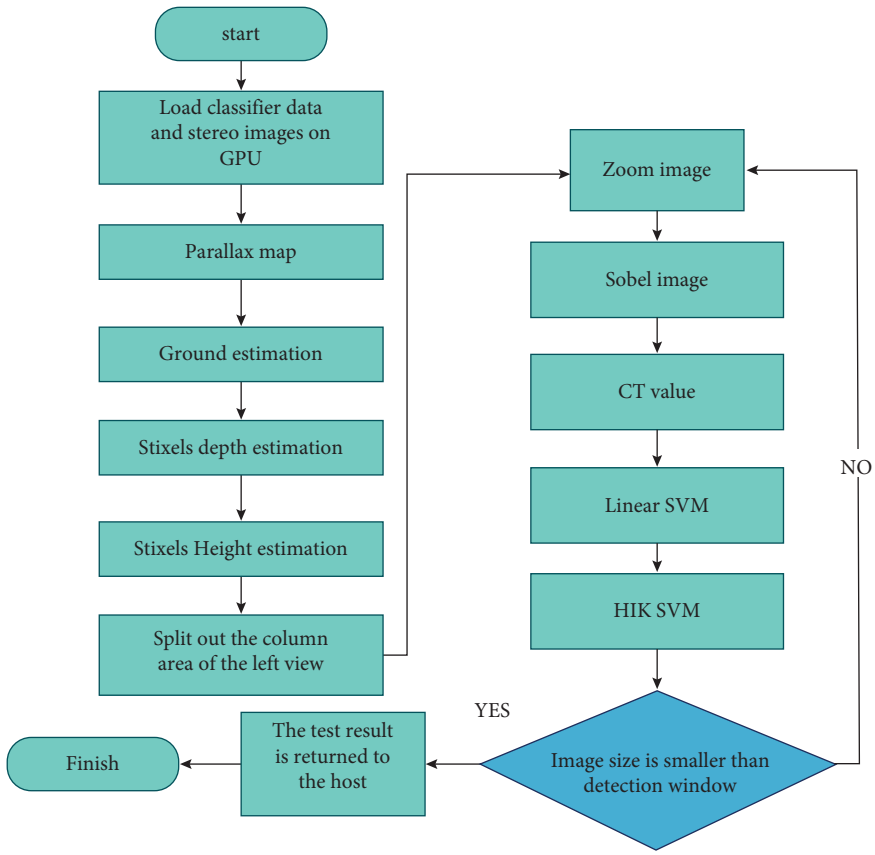

Figure 9: The flow of vehicle and pedestrian detection is based on improved Stixels.

Finally, we summarize the real-time detection based on a small-about network and propose the application of road-side embedded and intelligent mobile Internet technology in the field of road traffic safety, hoping to promote the development of the transportation industry in the direction of more green and environmental protection.

4. Conclusions

Due to the current frequent access of vehicles and pedestrians, traffic safety is becoming an increasingly prominent issue. Therefore, there is an urgent need for a real-time detection method that can effectively solve these emergencies and dangerous situations. An embedded network is deployed on the road to monitor road traffic conditions. When an emergency is encountered, it can quickly locate the place where the emergency occurs and activate the traffic information monitoring system in time, which can connect real-time vehicles and pedestrians with anomalies in a small area through the network. The information such as flow speed and lane generated on the wireless communication link is sent to each vehicle so that the road traffic condition in a small area can be monitored in real-time and abnormalities and traffic events can be detected. Embedded router as one of the most advanced road traffic management applications, it can supervise and control and process vehicles and pedestrians in all aspects 24 hours a day, and it can provide the latest real-time traffic information of vehicles and pedestrians. An embedded network real-time detection system can effectively monitor road traffic conditions and timely respond to the traffic management department's command decisions. The future embedded real-time detection system will be widely used in urban road traffic management, which provides a strong basis for the realization of the modernization of traffic safety management, which also provides a reliable guarantee for road traffic safety management.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare no conflicts of interest.

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