Vehicle Seat Vacancy Identification using Image Processing Technique

ABSTRACT

Image processing technology is very popular at present. It can be applied to various applications for detecting and processing the digital images. Face detection is a part of image processing. It is used for finding the face of human in a given area. Face detection is used in many applications such as face recognition, people tracking, or photography. In this research, face detection technique is used for detecting and counting the number of passengers in electric vehicle via webcam. The webcam is installed in electric vehicle and connected with Raspberry Pi 2 model B. When electric vehicle leaves from the station, webcam will capture passengers images in the seating area. The images will be adjusted and improved to reduce the noise which is done by software application. The images are sent to the server via 3G communication. Then, the server process the images by using face detection technology and counting the number of passengers in electric vehicle. The system obtains the maximum number of passengers in electric vehicle that process through the images then calculates the seat vacancy of the electric vehicle.

EXISTING SYSTEM

Generally, most people use public vehicle instead of personal car due to the rising of gasoline prices and traffic jams. Public company has been developing the system for displaying the position of the passenger vehicle for convenience of customers. However, those systems only indicate the position of the vehicle but not show the availability of seats in the vehicle. Customers will waste a time for waiting the next passenger vehicle and cannot manage the time travel or activities correctly. If customers know both of the position of the passenger vehicle and vacancy of seats, customers can use the time to other activities before the passenger vehicle arrives. Customers can plan their travel better.

DRAWBACKS

- Lot of time is wasted.
- We can’t guess the count of passengers.

PROPOSED SYSTEM

In this paper, the seat vacancy identification system is designed by using image processing technique. Webcam is connected with Raspberry Pi 2 in the electric vehicle for detecting the object on vehicle and sending the data to the server via 3G communication. When the electric vehicle leave from the station, webcam captured the images and send to the server by using Raspberry Pi and 3G communication. The images were sent completely. This system use Open Source Computer Vision (OpenCV) to analyze and process the data then calculated the vacancy of the electric vehicle by using the maximum face detection data.

ADVANTAGES

- Time is saved.
- We will get quality images even though there are many passengers.

SYSTEM REQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –IV
- RAM - 4 GB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows 7 or 8 32 bit
- Application Server : Tomcat5.0/6.X
- Programming Language : Java
- Java Version : JDK 1.6 and above