Abstract

Automotive Electronics sector having more demand due to day by day use of embedded system for different applications in car. Most of luxurious cars having more automatic controls like Airbags, ABS, ESP, ECU, ESP, climate control & more. Automatic Guided Vehicle (AGV) nothing but vehicle guideline provided by capturing images of the road. Intelligent driver assistance system nothing but provide the full assistance to the driver when drive driving the car on the road along with considering the traffic intensity & white lane detection. System consist of the camera module used to take continuous video streaming. This stream video store into SD card first & process this video by writing the script in python. Lane detection is done from the video by using the Hough Transform Algorithm & Hough lines. Design the system in such a way that by considering small Robot as the demo module & one is pilot car it acts as obstacle in all the direction. Detection of the obstacle in front & rear direction means it need different type of obstacle detector sensors to detect the obstacle. Ultrasonic sensor it acts as the obstacle detector to detect the any obstacle within the range of 4 meters. Full driver assistance provided by detecting the side lane by taking the video streaming by using camera mounted on the car & obstacle detection is done by using the Ultrasonic sensor module. It is possible to display the distance apart from obstacle in meter on the display. Display consist of TFT screen connected to the system to display the continuous video & distance from other car. All system
Driver Assistance System based on Raspberry Pi

implemented on the new platform Raspberry Pi Development Board having ARM1176-JFZS core & BCM Audio-Video Codec with operating frequency 700MHz. Board support TFT screen as well as the HDMI support[6]. Vehicles need to be re-advancing by video transmission among vehicles for safety and cooperative deriving. The video images captured from camera could help the driver to monitor the surroundings as well as transmit the compressed images over vehicular communication network Video over wireless communication has a lot of potential applications in intelligent transportation systems (ITS). Capturing the video is done by taking the continuous Video of the road lanes. Video streaming utilizes high bandwidth data links to transmit information. The high-bandwidth systems required larger equipment, better line-of-sight, and more complex mechanism for reliable transmission over the network. The intended platform for the system described in this study, is to develop a software defined algorithm for automatic video compression and transmission. The proposed algorithm is able to robustly find the left and right boundary of the lane using Hough Transform method and transmit over the network. Therefore the limitations of high-bandwidth equipment become more significant in a tactical scenario. The results show that the proposed method works well on marked roads and transmission in various lighting conditions[7].

References

- Chan-Hong Chao, Cheng-Hsiang Ho, Sheng-Hsiung Lin and Tzuu Hseng S. Li,” Omni-Directional Vision-Based Parallel-Parking Control Design for Car-LikeMobile Robot.”
- Narayan. P. Pawar,MinaksheeM. Patil,”Intelligent Diver Assistance System for Automotive”;

Index Terms

Computer Science

Systems Design
Keywords

ARM1176-core  Raspberry Pi  Robot  USB webcam  Ultrasonic