

MULTI-RECOGNITION COMBINED SECURITY SYSTEM FOR INTELLIGENT CAR ELECTRONICS

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Received January 2011; revised May 2011

ABSTRACT. *This paper presents car electronics for a multi-recognition wireless communication and security system integrating radio frequency identification (RFID) and face recognition technology. The system combines the different advantages of RFID and face recognition technology. This car electronic system is optimal for an innovative specific application. Not only can the system protect the car, but it can determine responsibility in a car accident. Furthermore, the car electronic system integrates RFID, face recognition, general packet radio service (GPRS), Bluetooth and the global positioning system (GPS). It has been trending the merger goal of digitization. Therefore, it creates a tremendous amount of commercial opportunity.*

Keywords: Car electronics, RFID, Face recognition, GPRS

1. Introduction. Every year in the United States, about six million traffic accidents occur due to automobile crashes. In 2003 alone, these accidents accounted for \$230 billion in damaged property, 2,889,000 nonfatal injuries, and 42,643 deaths. The potential benefits of intelligent transportation system (ITS) car electronics include driving safety, transport efficiency and comfort, which arise from increased traffic information, reduced driving loads and improved route management [1,2].

More recently, the availability of the global positioning system (GPS) and the deployment of cellular-based communication systems have further fueled the development of vehicle tracking systems and systems to provide information to travelers in vehicles through wireless means [1]. Other technologies that facilitate intelligent transportation include vehicular telematics, vehicular radars and RFID. Among various applications, these technologies enable mayday systems, stolen-vehicle tracking, automatic route guidance and travel information, intelligent near-collision avoidance, tire-pressure monitoring, vehicle entry and security systems, electronic toll collection, automatic vehicle identification, and real-time location systems [2]. Implementation fields can be adopted for purchasing gas, going through tolls, paying for parking, checking security or troubleshooting engine problems, among other functions [3,4].

Traffic information collection is the foundation of traffic management, and accurate, detailed and timely data will guarantee the validity and credibility of the traffic supervision and control. According to an analysis of traffic control strategies, regardless of what type of strategy it is, it must receive ample information from the data collection system to exert its functions [5]. Compared with traditional loop detectors and GPS-based methods, this newly emerging approach has the benefits of low costs in device installation and maintenance, convenience in data collection and relatively large sample sizes, especially in peak hours [6].