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ABBREVATIONS

| | |
|------|---|
| ANPR | Automatic Number Plate Recognition |
| LPR | License Plate Recognition |
| RFID | Radio Frequency Identification |
| LP | License Plate |
| FPGA | Field Programmable Gate Array |
| PC | Personal Computer |
| RF | Radio Frequency |
| UART | Universal Asynchronous Receiver/Transmitter |
| RTS | Request to Send |
| CTS | Clear to Send |
| DTR | Data Terminal Ready |
| DSR | Data Set Ready |
| CLB | Configuration Logic Blocks |
| LUT | Look Up Table |
| RAM | Random Access Memory |
| DCM | Digital Clock Manager |
| ADC | Analog to Digital Converter |
| DAC | Digital to Analog Converter |
| JTAG | Joint Test Action Group |
| DDR | Double Data Rate |
| CMOS | Complimentary Metal Oxide Semiconductor |
| SPI | Serial Peripheral Interface |
| BPI | Byte Peripheral Interface |
| LED | Light Emitting Diode |

| | |
|-------|---|
| USART | Universal Synchronous Asynchronous Receiver Transmitter |
| NO | Normally Open |
| NC | Normally Close |
| DT | Double Throw |
| SPST | Single Pole Single Throw Switch |
| SPDT | Single Pole Double Throw Switch |
| DPST | Double Pole Single Throw Switch |

ABSTRACT

This paper reveals about the design and development for automated toll collection through number plate recognition. Since it is simpler and faster than the traditional token based ticket system, it has all the potential to replace the existing system. Moreover, it saves users valuable time by reducing the queue length in front of the toll counter. It is used to pay the amount automatically and open & close the toll gate automatically.

We aim to reduce the time consumed to pay the toll gate amount and also to help the police department to trace the vehicle, incase if it was stolen or used for any illegal activities. As well as we are going to increase the security features in the toll gate, because now a day's toll gate are the entrance to the main cities. If we increase the security in the toll gate section automatically the security in the city will be also increased. The proposed applications has been designed using very high-speed integrated circuit hardware description language (VHDL) and simulated .Finally, it is downloaded in a field programmable gate array (FPGA) chip and tested on some given scenarios.

The entire system is developed as hardware based system using FPGA kit and associated devices. The software for this system has been developed using VHDL language developed in the Xilinx tool and MATLAB for number plate recognition automatically. The system is connected to a PC using the RS232C interface in the system. This allows the system to read and write data from/to a database that is being maintained in the PC connected to it. If the Vehicle passed before paying the money the buzzer will automatically ring & the alert will be given to the police also. If any vehicle carries suspicious gas means the buzzer will ring so improved security than the existing systems.