

## ABSTRACT

The rapid development in technology give an effect to the parking area that became one needs to motorists. In general, the parking is needed at offices, shopping centers, entertainment venues. Especially for the office, often the absence of the payment system, so that the process of entry and exit can save the time. Conventional methods make motorists complain of impending traffic jams. Because this methods is still using tickets or user ID.

According to this final task given solutions to the controller and gate at the parking area, as well as at the security gate on a system called Smart Parking System. With case studies office parking lot, the system works on the main gate, with grooves is that to receive the data in the form of signals through serial communication from a computer to arduino passed to the gate control circuit. Securiy features are given the emergence of a security gate installed on the road after the exit gate, with the aim of stopping drivers who break through the main gate.

According to the test, ultrasonic sensors give instruction to close the gate when the car drove through the main gates based on the difference between the actual distance and the largest measuring sensor is 1 cm when getting in and 3 cm when getting out, while the difference between the smallest is 0 cm. At the security gate, the average yield of the height of the spike lifted is 5.125 cm and response time 5.098 seconds. The process that lasts for a single entry or exit is 16.7 cm when the car entered and 17.5 cm when the car out.

*Keywords: microcontroller, smart parking system, automatic control.*