

## ABSTRACT

Public transportation such as fast-limited bus often disobeys the rule, one of the rules is passenger pickup at the unauthorized place. This violation is committed by a certain driver who wants to earn more money with picking up the passenger at the unauthorized place. Even though there is manual checking by the employee, passenger pickup at the unauthorized place is still happen. Therefore the prototype of passenger monitoring system is built to help the transportation company. The prototype of passenger monitoring system is implemented using Arduino microcontroller, sensors, GPS, and GSM module. The system is using ultrasonic and temperature sensor, they are placed at passenger seat to detect passenger existence. The processed data by Arduino will be sent with SMS format through GSM module. The system test results show that system can distinguish people or objects existence on the seat with 100% accuracy, the system also can detect the passenger pickup violation with 100% accuracy. The test results also show that GPS accuracy depends on the checking place, the range difference at worst case scenario is 31 meters with 0,0002 difference on both longitude and latitude. Therefore, the program adds 0,0002 to passenger pickup place as GPS accuracy tolerance.

**Keyword:** Fast-limited bus, Arduino, Sensor, Passenger