

# Automatic Pothole Detection

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**Abstract:** *The "Smart Mobility Solution: Autonomous Pothole Detection and Obstacle Avoidance System" project introduces a comprehensive approach to urban driving challenges, addressing both obstacle avoidance and proactive pothole detection. Leveraging an integrated system comprising an Arduino Nano microcontroller, GSM800 module, GPS Neo-6M module, ultrasonic sensor, IR sensor (E18), four DC motors (160 RPM), and a Li-ion battery pack, this initiative aims to redefine the landscape of urban transportation. A critical innovation within this project lies in the incorporation of an ultrasonic sensor, ingeniously situated between the chassis, actively measuring ground clearance. This sensor serves a dual purpose by not only detecting obstacles but also identifying potholes on the road. Upon detection of a pothole, the system triggers a sophisticated mechanism that combines the GPS Neo-6M module for precise location determination and the GSM800 module for instantaneous transmission of this data. This proactive approach towards pothole detection contributes significantly to the timely maintenance of urban road infrastructure.*

**Keywords:** obstacle avoidance, Ultrasonic sensor, GPS, GSM800

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