

ABSTRACT

The Internet of Things (IoT) is a concept where all objects or specific items have the ability to communicate with each other through the Internet network. IoT has been widely implemented in vehicles such as cars and motorcycles. Motorcycles are a popular choice among people due to their affordable price and compact physical form, which allows for quick and efficient use. Because many people were helped by the existence of motorcycles, many entrepreneurs are opening motorbike rental businesses, especially in big cities and tourist attractions. However, many owners often neglect the maintenance of their motorcycles. Regular motorcycle maintenance is crucial to maintain performance and preserve the lifespan of components within the engine. Owners often only address repairs when the motorcycle experiences damage. One important aspect of motorcycles is the engine temperature. Overheating can occur when a motorcycle is used for extended periods or continuously without breaks. Engines that frequently overheat can significantly reduce the motorcycle's performance and even cause damage to components within the engine. Therefore, the author proposes a system to monitor the engine temperature and the CO gas level emitted using an Arduino Uno Rev3 microcontroller and two sensors: the DHT-22 temperature sensor and the MQ-7 gas sensor. Fuzzy logic algorithms are used to classify and determine the motorcycle's condition. The built system is integrated with IoT, allowing it to send notifications to the vehicle owners if the engine experiences overheating through a Telegram Bot. The notifications include the vehicle's status, temperature, CO level, and motorcycle location. The system is also equipped with the Ublox NEO-6M GPS module to obtain the location of the motorcycle so that the owner can send a technician to repair it and track the motorcycle if there are indications that the motorcycle has been stolen. Notifications to the rider are provided through an LCD screen installed in the handlebar area and a buzzer module for audible warnings. The result of this research is a successfully built system that monitors the motorcycle's condition and the location where the motorcycle is located. In addition, the system has also successfully sent real-time notifications to the rider and vehicle owner regarding the status, temperature, and CO data.

Keywords: *Internet of Things, Motorcycle, Overheat, Monitoring, Notification*