Designing a Portable Gas Hc Detector Using the Arduino Uno Sensor MQ7 Microcontroller

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ABSTRACT

Air quality in urban areas is often on the threshold of tolerance. One of the contributors contributing to air pollution is the emission or exhaust gas from the combustion of oil fuels containing contaminating materials such as SO2, NOx, CO, HC, SPM and other particles. These pollution materials can have a negative impact on humans or ecosystems if they exceed certain concentrations. Due to the limited number and size of available emission gauges, many vehicles that do not pass the emission test can go on the road, therefore the authors make HC exhaust emission measuring devices based on microcontrollers using Arduino Uno and MQ7 sensors that can determine the gas emissions discard the vehicle in the form of HC. The purpose of the study was to compare the results of the design tools with existing manufacturing equipment and to determine the feasibility of the HC gas emission measuring devices based on Arduino Uno microconrolers. tested on two different 2012 motorbikes with different carburetors and injection with idle rpm 1500, 2000, 2500, 3000, and second idle. The sensitivity test results of the design tool using Arduino Uno MQ7 sensor were a percentage of the total average error in bicycle carburetors which were 46, 37% and the average percentage of total errors on injection motorcycles was 39.74%

***Keywords**: AT Mega 287, Arduino Uno, MQ7 Sensor, Flue gas measurement*