

NICOTRACT - Effectiveness of Nicotine Tracker Based on Microcontroller Arduino, a Nicotine Level Detection Sensor for Educational Media and Prevention Use of Vape on Teenagers

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Abstract

Vaping and the huge influence of vaping trends spread to all countries in Asia very quickly. Vape causes nicotine addiction in liquid form, the distribution of various flavoring substances (*flavoring*) in the form of vape liquid, which causes respiratory irritation and increases the likelihood of first-time smokers. This is caused by the wrong stigma about vape, which are considered safer than conventional cigarettes without realizing the nicotine content they contain causes the effects of addiction or dependency, damages brain tissue, heart damage, lung damage and damage to the user's liver. Meanwhile, current efforts to prevent the trend of e-cigarette use among teenagers are not enough socialization. However, a tool is needed that can detect the dangerous substances contained in each e-cigarette liquid. This research aims to create a Nicotine Tracker (NICOTRACT), a device that will be the solution. The NICOTRACT Sensor MQ-3 circuit is used to measure the concentration of nicotine in vaping liquid. The Arduino microcontroller will start reading data from the expiratory air output sensor released from the NICOTRACT pipe. Arduino will convert the detected data into ppm units, and will display ppm units and info on the LCD monitor screen based on three classifications, namely, Non-Smoker (around 0-99 ppm nicotine), Passive Smoker (100-200), Active Smoker (more than 200 ppm nicotine). The results of the NICOTRACT research detect nicotine and display the results of measuring nicotine levels by comparing the distance to the exhaled air source on the LCD according to the ppm unit of nicotine in the user's breath. NICOTRACT easily classifies expiratory samples from active smokers, moderate samples and non-smoker samples so that NICOTRACT is a cheaper, more affordable and efficient solution as a medium for detecting and educating teenagers compared to conventional cigarette detectors.

Keywords : Vape, nicotine, liquid, NICOTRACT, exhalation, active smoking, passive smoking.