

Training On the Use of the Mq-3 Sensor Tool For Monitoring Alcohol Levels in Humans at Senior High School Nurul Jadid

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Abstract—Alcohol is a psychoactive substance that is addictive. Psychoactive substances are a class of substances that work selectively, especially on the brain, which can cause changes in a person's behavior, cognitive emotions, perceptions, and consciousness. While addiction or addiction is an addiction or dependence on certain types of substances. To improve the standardization of human resources, of course, it must be free from all psychoactive substances, especially alcohol in this case. The Mq-3 gas sensor is a sensor that is suitable for detecting alcohol levels directly, both from gases in the air that come from inanimate objects or from someone's breath. The Mq-3 sensor element consists of an SnO₂ layer with low conductivity in clean air. The sensor resistance will change along with the detection of the presence of ethanol gas by the sensor element. If the ethanol concentration is high, the sensor resistance will decrease so that the output voltage will increase. The results of alcohol level detection by the Mq-3 sensor will be processed by a microcontroller which is then displayed through a 16x2 LCD. And displays a notification according to the range (level) of alcohol detected via LED with three different colors and a Buzzer.

Keywords—Alcohol, Mq-3 Sensor, Microcontroller

1 Introduction

The world of education is now developing very rapidly including the technology used, but we must be able to manage or be aware of the behavior of our students. Taking care of and being introspective with today's era, everything is easy to do, including drinking, because it is a time when young people today are prone to being influenced by the dark world that is currently rampant, such as alcohol which continues to haunt the world of education today, alcohol with a term that is generally designated in organic compounds usually contain -OH or a hydroxyl group attached to a carbon atom, which is itself bonded to a hydrogen atom and/or another carbon atom [1].

There are several tools that can monitor alcohol levels in the human body through the respiratory system [2]. To carry out monitoring related to alcohol levels, this tool that has been designed and made can detect related levels of alcohol in humans, so we socialize the use of this tool with today's young people who are very vulnerable to contamination, which should not be done, in order to maintain this needs to be shielded with basic knowledge related to the use of alcohol and other things that can be harmful [3].

Many of the sensors used are relevant, so far we are using the Mq-3 sensor to detect alcohol levels. The sensor resistance will change as the presence of ethanol gas is detected by the sensor element [4]. If the ethanol concentration is high, the sensor resistance will decrease so that the output voltage will increase. The Mq-3 gas sensor is a suitable sensor for detecting alcohol levels directly, either from gases in the air that come from inanimate objects or from someone's breath. The sensor element of the Mq-3 consists of a layer of SnO₂ with low conductivity in clean air [5].

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2 Method

This training lasted for approximately 1 month from 24 July to 16 August 2022. This activity took place in several classes of MA Nurul Jadid Paiton Probolinggo. This place was chosen as the place for socialization, because based on the results of observations and information surveys conducted, it was found that students at the senior high school level are the most vulnerable to something bad if implemented.

The method used in this community service is as follows.

1. Direct observation. Direct observation, namely the team immediately went to the service location to obtain data. We do this before and during the activity. Observations are useful for knowing needs and what needs to be improved. Observation is very important to realize the success of the community service activity itself.
2. Lecture method combined with discussion, question and answer, and practice. With the use of this method it is expected that training can run effectively. This method was chosen so that the goal is achieved and in accordance with the target target.
3. Training, namely the team teaches directly how to make scientific work according to the rules.

Some of the tools used to support community service have been provided by the school. The tools provided by the school are loudspeakers. Loudspeakers are used as a means of communication with students. As for the activities carried out, namely: Initial survey of the place of implementation; Licensing; Determination of participants; Making proposals [7].

This service activity will be carried out after all preparations have been completed. This activity was made into several stages, namely the first stage, delivering material and analyzing mistakes that we can make nowadays. Next, the second stage, socialization related to the function of the tool that we will use [8].

3 Findings And Discussion

3.1 Finding

The knowledge of high school level students about alcohol is 61%, but from that number they can only know the name without details related to benefits or not related to it.

1. Types of alcohol

There are a lot of types of alcohol, but the level of alcohol content is definitely different for each type, therefore at least we can find out what is related to the alcohol content because there are several types of alcohol whose levels reach 0% [9]. To prevent some unwanted things, it is necessary to know whether or not the benefits are related to alcohol [10].

2. Problems

The problem that is often experienced by students now is that there are lots of drinks around, whether in the convenience store or shop, we have to be observant and detail about the benefits or not of these drinks and what percentage is related to the alcohol content in the packaging, so we are self-aware about what will result. of the effect of the alcohol content.

3.2 Discussion

The beginning of the activity, each implementation team introduced themselves and gave a speech. Then it is continued with the delivery of material related to several components and assembling the tools used to the function of the tool. In this session, Madrasah Aliyah students were very enthusiastic about the material presented.



Fig. 1. The tutor introduces himself

Assistance in terms of socialization on how to find out alcohol levels in the body, starting from simple material to practicing tools, is carried out by a Team from Nurul Jadid University students. This activity lasts until students really understand, as shown in the image below. The first material presented in the first stage is what components are used in the tool in detail one by one and what their functions are so that we form a tool that we can use to detect alcohol levels in the body.



Fig. 2. Practical tools for students

4 Conclusion

As already mentioned regarding the purpose of holding this service, namely community service activities that have been carried out well and smoothly, the students of MA Nurul Jadid are very enthusiastic about the activity, now they understand related to the alcohol content in their respective bodies and the tools used can become a driving force for students when doing chemistry practicum, also students also know the benefits of several components that support the alcohol content tool being practiced.

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