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DEVELOPMENT AND PERSPECTIVES OF USING THE ULTRASONIC OBJECT MOVEMENT DETECTOR: THE IMPORTANCE THE ENGLISH

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Introduction. Our goal is to design and build a simple and cheap primary ultrasonic motion transmitter, which is aimed at detecting the physical motion of an object. Ultrasonic motion detectors are based on the use of a phenomenon known as the Doppler effect when detecting the movement of an object [1]. In the process of working on this topic, it became necessary to submit information about the projected invention, namely, the characteristics, diagram and principle of operation in English, because it is a mean of global communication and the language of science. For example, the instruction to a device functioning is given entirely in English, so the specialist has to understand it properly. For this s/he has to know technical vocabulary. So we had to use English as the language of international communication. We came to know that it is the language of navigation, aviation and programming as well as literature and education. Practicing engineers explore new information in English at their work.

Materials and Methods. For our research, an analysis of scientific articles was conducted and empirical and comparative methods were used to describe the results. Graphical and tabular research methods were used to visualize the generalized results obtained. Digital modeling of the operation of micro- and nanocircuits using MatLab, Atmel Studio, Proteus, PSoC Designer, NI Multisim was used to scientifically substantiate the research results.

Results. Search for basic information for engineers is provided in English-language materials, such as websites, articles, technical specifications, manuals, manuals, etc. In order to successfully receive information, you need to have knowledge of the English language, which helps in understanding various foreign materials.

Table 1 – Characteristics of the designed ultrasonic sensor

Input voltage	4-28 Volt DC
Current consumption	27 mA (the alarm is off) 55 mA (alarm is on)
Range of functioning	Up to 19 meters
Operating frequency	40 kHz
Supply output voltage	3,3 V
Trigger time	0,30 s
Working temperature	-20…+50°C

Table 1 shows the characteristics of the sensor. This device can detect the movement of obstacles (doors, concrete walls), but the operating range will decrease.

Therefore, without English, the information about this device will be incomplete, incomprehensible to users, because English is the language of science. Structural diagram of an ultrasonic motion sensor for a security system in the dark (at night), security and lighting systems, shown in Fig. 1.

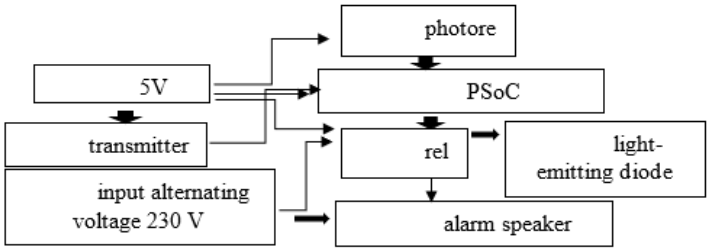

Fig. 1. Structural diagram of the ultrasonic motion sensor

The principle of operation of the device: the PSoC microcontroller simultaneously receives data from the photoresistor and the transmitter/receiver, checks them; when the conditions are fulfilled, namely: fixation by a photoresistor, absence of light, the received shifted wave by the receiver transmits a signal to the relay, which in turn closes the contacts and triggers an alarm; also the relay turns on the LED. A voltage change of 220V powers the alarm speaker. This sensor is easy to use, it is environmentally friendly, has low cost and low power consumption as well as high sensitivity. Most of the technology is supplied from other countries, for example, various technical descriptions of devices, parts, error codes, even instructions from household appliances. They contain the maximum concentration of terms, so their study will definitely have a positive effect on the vocabulary of an engineer.

Conclusion. So, it has been proven that without the English language, information about this device will be incomplete and incomprehensible to users. One of the advantages of knowing the English language is the possibility of applying this device development project at the international level. The practical significance of the obtained research results is that the suggested conclusions and practical recommendations for the improvement and development of a proprietary motion sensor based on the Doppler effect will allow automating operation of electrical equipment, thereby saving money on electricity consumption, as well as providing a powerful security system.

References:

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