РУХАНИ ЖАҢҒЫРУ

20 АСТАНА

ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ

Студенттер мен жас ғалымдардың
«ҒЫЛЫМ ЖӘНЕ БІЛІМ - 2018»
XIII Халықаралық ғылыми конференциясы

СБОРНИК МАТЕРИАЛОВ
XIII Международная научная конференция
студентов и молодых ученых
«НАУКА И ОБРАЗОВАНИЕ - 2018»

The XIII International Scientific Conference
for Students and Young Scientists
«SCIENCE AND EDUCATION - 2018»

12th April 2018, Astana

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Л.Н. ГУМИЛЕВ АТЫНДАҒЫ ЕУРАЗИЯ ҰЛТТЫҚ УНИВЕРСИТЕТІ

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«Ғылым және білім – 2018» атты студенттер мен жас ғалымдардың XIII Халықаралық ғылыми конференциясы = XIII Международная научная конференция студентов и молодых ученых «Наука и образование - 2018» = The XIII International Scientific Conference for students and young scholars «Science and education - 2018». – Астана: http://www.enu.kz/ru/nauka/nauka-i-obrazovanie/, 2018. – 7513 стр. (қазақша, орысша, ағылшынша).

Жинаққа студенттердің, магистранттардың, докторанттардың және жас ғалымдардың жаратылыстану-техникалық және гуманитарлық ғылымдардың өзекті мәселелері бойынша баяндамалары енгізілген.

The proceedings are the papers of students, undergraduates, doctoral students and young researchers on topical issues of natural and technical sciences and humanities.

В сборник вошли доклады студентов, магистрантов, докторантов и молодых ученых по актуальным вопросам естественно-технических и гуманитарных наук.

UDC 681.586
DEVELOPMENT OF A SOFTWARE AND HARDWARE DEVICE FOR DETECTING SMOKE USING A GAS SENSOR MQ-2 ON A MICROCONTROL SYSTEM

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The following typical components were used when constructing the appliance:
- Arduino NANO - Arduino NANO platform.
- MQ-2 - gas sensor;
- LEDs - D7, D6, D5;

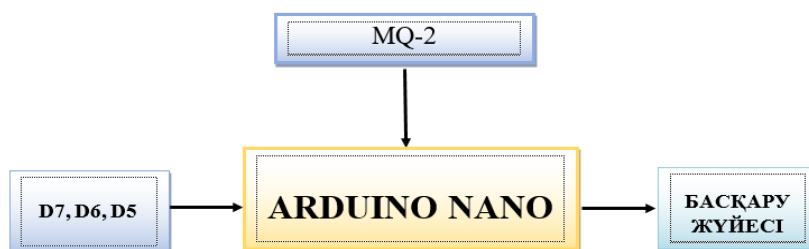The structural diagram of the device is shown in Figure 1.

Figure 1. Structural drawing of the device

Programming. The ploppope Arduino has been launched with the help of this adverb. Tools> Board "Arduino Diecimila, Duemilanove or Nano w / ATmega168" or "Arduino Duemilanove neemece Nano w / ATmega328", which has been added to the opaque microporo.

The ATmega168 and ATmega328 microprocessor plugs are not loaded and loaded with a long padlock. The new STK500 has been made available.

The coil will be loaded with a non-concealed micro-pneumatic ICSP blade.

The gas detector based on the MQ-2 gas detector determines the presence of hydrocarbon gas in the air (propane, methane, n-butane), smoke, and hydrogen. Figure 2 shows the MQ-2 gas meter sensor.
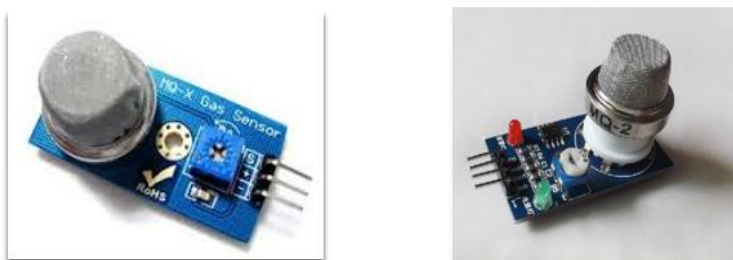

Figure 2. MQ-2 Gas Detector

Figure 3 shows a schematic diagram of the functional drawing of the model MQ-2 on the Arduino platform.
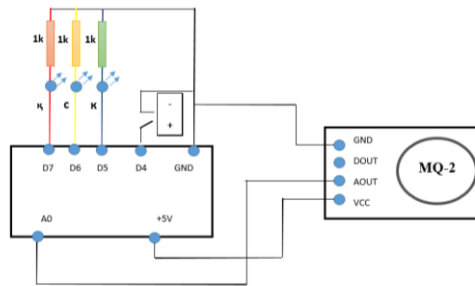
Figure 3: Functional drawing of the model MQ-2 on the Arduino platform

The sensor is connected to the control electronics by means of three wires. It is convenient to use Troyka Shield when connecting to Ardabil.

Description:
- Power supply: 5 V
- Current: 160 mA

Measurement range:
- Propane: 0.2 - 5 propyl
- Bouton: 0.3 to 5 ppm
- Methane: 5 to 20 ppm
- Hydrogen: 0.3 - 5 ppm
- Alcohol: 0.1 - 2 propyl

Character Set:
- Input Voltage: DC5V
- Consumption power (current): 150 mA
- DO output: TTL digital 0 and 1 (0.1 and 5 V)
- Output of AO: 0,1 - 0,3V (relative to contamination) at a maximum concentration of 4V

The sensor can also be used to detect industrial smoke and gas leakage. The result is proportionate to the presence of gas - an analog signal that is susceptible to gasification. The sensitivity can be adjusted by means of a trimmer located on the sensor board.

The gaseous heating element is built, which is required for chemical reactions. Therefore, the sensor will be hot during operation, which is normal. To get a constant pointer, the new sensor should be heated once and put in for 24 hours. After that stabilization takes 1 minute after switching on.

Sensor indicator depends on the temperature and humidity of the air. Therefore, when using a gas sensor in different environments, you need to adjust these parameters to obtain a specific indicator.

The setup () function is the main function
The loop () function reveals the start message and downloads the loop
We will initialize the ports
void gasData (int quantity) // receipt of data from the sensor / gass
if (amount <300) // when the sensor is 300 apses
Serial.println ("Gas level: Normal!");
BTSerial.println ("Gas level: Normal!"); // Disclaimer and Incorrect LEDs
pinMode (IN1, OUTPUT);
pinMode (IN2, OUTPUT);
pinMode (EN1, OUTPUT);
pinMode (EN2, OUTPUT);
pinMode (A0, INPUT); // Pin A0 is used for receiving data from the sensor / marker
pinMode (6, OUTPUT); // Pin 6,7,8 for LEDs
pinMode (7, OUTPUT);
pinMode (8, OUTPUT);

The cycle is over

Values are provided. Operating mode of digital LED indicators is dynamic.

In the course of my research, I applied the need for wireless communication to manage the project. For this purpose the HC-06 bluetooth has been used, the main advantage of which is that the sketch is added to Ardudino without the modular RT-TX pin. 4 The picture shows the HC-06 bluetooth module.
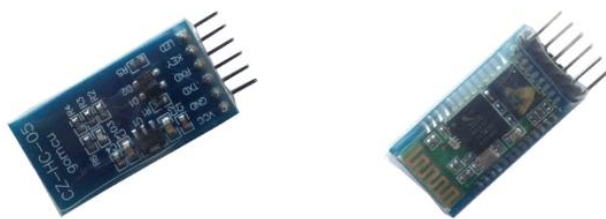

Figure 4. HC-06 bluetooth module

Figure 5 shows a structural scheme for connecting a module module to Arduino.
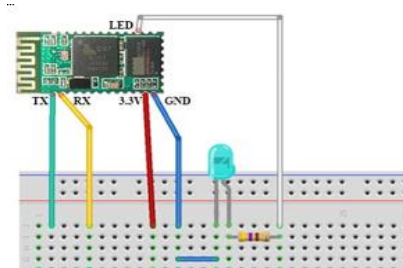

Figure 18. Structural drawing of the module of the module Arduino

Connecting the HC-06 Battery Module to Arduino:
1) VCC - + 5v (+5 volts)
2) GND - GND (ground)
3) RX - TX (arduino pin)
4) TX - RX (arduino pin)
5) LED - (not applicable)
6) KEY - (not applicable)

Upon activation, the blue LED should be switched off at 4 times per second, which indicates the connected module display, even if the module is not connected to any device.

By connecting bluetooth on your phone and searching for new bluetooth devices, we find and connect to the HC-06, where the password is PIN: 1234. After switching on, Arduino goes to the IDE and writes a simple scratch for data transfer from arduino to your phone.

The service can be activated on a continuous and easy-to-use basis. The camcorder is equipped with a cigarette lighter foil and a baseball fan. When working in a strange or changing environment, the mobile robot must be able to act on a previous test to respond to unpredictable situations in adapting to environmental changes.

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