Секція: **Інформаційні технології**

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DESIGN OF DEVICE TO AVOID OBSTACLES

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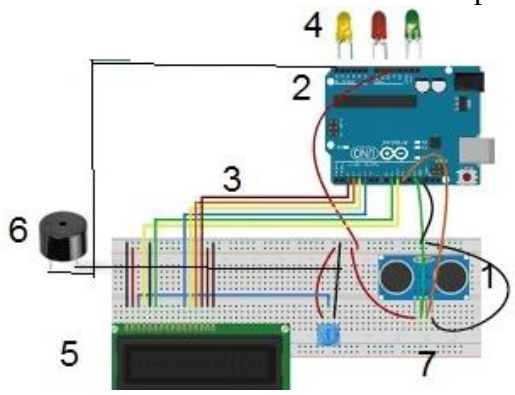
Key words: ARDUINO, BOARD, OBSTACLES

In robotics, obstacle avoidance is the task of satisfying some control objective subject to non-intersection or non-collision position constraints.

The goalof my project is to design device for obstacle avoidance, which is not expensive and could be used for all existing cars.It will help to protect car from any scratch or collision while parking.The distance to your obstacle will be displayed on an LCD monitorin CM, lighting led with different colors and alsosounded with audio alert. As you get closer to your obstacle the audio alert beeps more frequently.

This device is shown on picture 1 and includes the following tools:

1. Ultrasonic sensors emit short, high-frequency sound pulses at regular intervals. These propagate in the air at the velocity of sound. If they strike an object, then they are reflected back as echo signals to the sensor, which itself computes the distance to the target based on the time span between emitting the signal and receiving the echo.
2. ArduinoUno board is a microcontroller board It has 14 digital input/output pins , 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started.
3. Jumper Wires to connect sensors to each other and to the board arduino
4. Led for given signal by lighting when can in Limits of the permitted centimeters
5. LCD monitor for given signal by shown on screen how many centimeters you have for not collision
6. Buzz sound given signal sound when can in Limits of the permitted centimeters
7. 1 Breadboard (small board to connect the wires and to save pins on board arduino)



Picture 1 – Developed device

The advantage of this development is cheap cost price(about12 $) and possibilityto use for any car.With this obstacle sensor you can find out your car's distance to another car behind it.