

Carkit-project for arduino

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Introduction Carkit-projekt consists of a small car which is controlled by an Arduino. The car can be controlled with a IR-controller or with bluetooth.

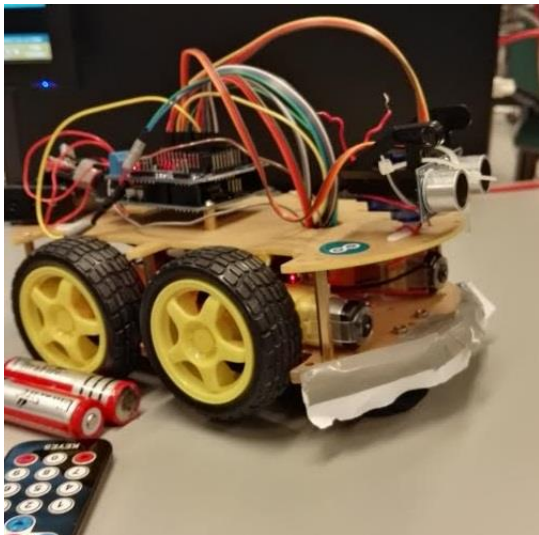


FIGURE 1. Car, fully connected

Objectives

The objective was to create a car that could be controlled with IR or Bluetooth and also had automatic drive mode that would avoid obstacles or follow a line on the ground.

Components

The carkit has 4 motors for the wheels. A motor driver board to control the motors. A servomotor and an ultrasound sensor for obstacle detecting. Bluetooth adapter and a IR-receiver for the remote controls. And also an Arduino to process the commands and driving logic.

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Methods

The Arduino was programmed using Arduino programming software. Bluetooth controlling was done with android studio. The IR-controlling was done by mapping the hex values of each button on the IR-controller and then assigning a command to that button press value.

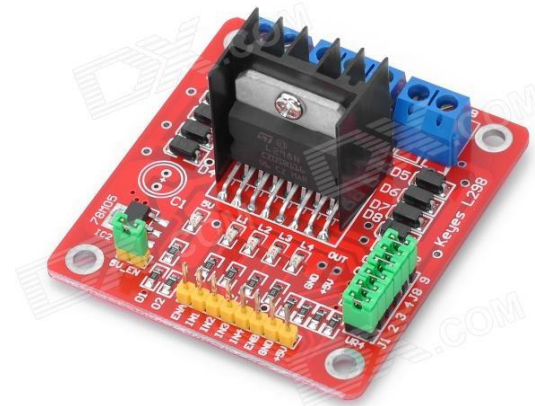


FIGURE 2. L298N motor driver

Results In the time we were given we got the line following AI working and also both manual controlling types (IR and Bluetooth). In the future we can use the same principals of the android code to create Bluetooth controlling for IOS or Windows phones.

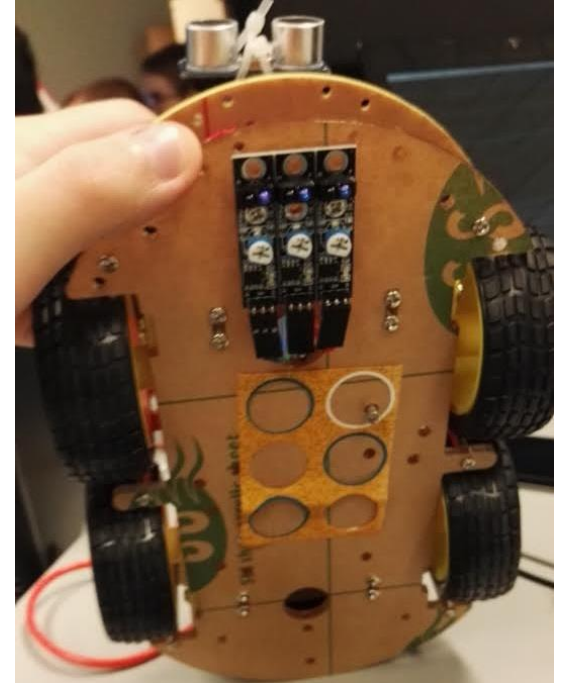


FIGURE 3. Bottom view of the car

Conclusions

Arduino can be used quite effectively to make small robotic devices. The car project currently uses all of the digital pins of the Arduino. So if we were to create something slightly more complex the arduinos digital pin count wouldn't be enough to support the features and we would have to think about using a different board or perhaps more than one Arduino which could communicate between themselves.

References

<https://www.arduino.cc/en/>