Arduino en MATLAB maak wetenskaplike kontak

Author:
Jacques Maritz[1]

Affiliation:
[1]Department of Physics, University of the Free State, South Africa

Correspondence to:
Jacques Maritz

Email:
nanojac@gmail.com

Postal address:
PO Box 339, Bloemfontein 9300, South Africa

How to cite this abstract:
Maritz, J., 2013, 'Arduino en MATLAB maak wetenskaplike kontak', *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie* 32(1), Art #420, 1 page. http://dx.doi.org/10.4102/satnt.v32i1.420

Note:
This abstract was presented at the 'Studentesimposium in die Natuurwetenskappe 2011', presented under the protection of the *Suid-Afrikaanse Akademie vir Wetenskap en Kuns*. The symposium was held at the University of South Africa on 27–28 October 2011.

Arduino and MATLAB make scientific contact. Digital Arduino driven spectronometre using scientific MATLAB orientated interface and protocol. The Arduino.pde is a famous server sketch in the Arduino IO Class, designed by the G. Campa (12 August 2010, version 2.5 [R2010a]), which continuously runs on the ATMEGA328 microcontroller on the latest Ardiuno Uno development board, enabling digital or analog pin writing or reading capabilities. This is similar to the typical analog to digital controllers. This operational program allows the user to use the Arduino together with MATLAB to engineer any creative scientific instrumentation. This led to the idea of creating a very inexpensive digital spectrometer to test the engineered program and the capabilities of MATLAB to perform in such an electronically enhanced environment. This digital web-cam driven spectrometer and the entire device is managed through a universal serial bus (USB). Sensing devices, DC-motor and stepper-motor driving capabilities are tested in this project, as is MATLAB's capability to create a graphical user interface to facilitate timer functions and object creation for the Arduino in general and for web-cam communications in particular.

Die digitale Arduino-aangedrewe spektrometer Arduino.pde is 'n beroemde bedienerskets in die Arduino IO-Klas, ontwerp deur die G. Campa (12 Augustus 2010, weergawe 2.5 [R2010a]), wat voortdurend op die jongste Ardiuno Uno met die ATMEGA328-mikrokontroleerder kommunikeer. Dit stel digitale of analoë penskryf- of leesvermoëns in werking.

Dit is soortgelyk aan die tipiese analoog-na-digitale beheerders. Hierdie operasionele program maak dit vir die gebruiker moontlik om die Arduino saam met die MATLAB wetenskaplike-georiënteerde koppelvlak en protokol te gebruik om virtueel enige kreatiewe wetenskaplike toerusting te beheer. Op hierdie wyse is die idee van 'n baie goedkoop digitale spektrometer gebore. Die projek sal die vermoëns van MATLAB om in so 'n elektronies ingewikkelde omgewing te werk, toets. Die projek berus op 'n digitale web-kamera-gedrewe spektrometer, en die hele toestel word deur die universele seriebus (*USB*) geheue stokkie aangedryf. Sensortoestelle, gelykstroommotor- en stappermotoraandrywingsvermoëns is in hierdie projek getoets, asook MATLAB se vermoë om 'n grafiese koppelvlak te skep wat akkurate tydfunksies en betroubare protokol vir die Arduino in die algemeen en die web-kamera-kommunikasie in die besonder fasiliteer.