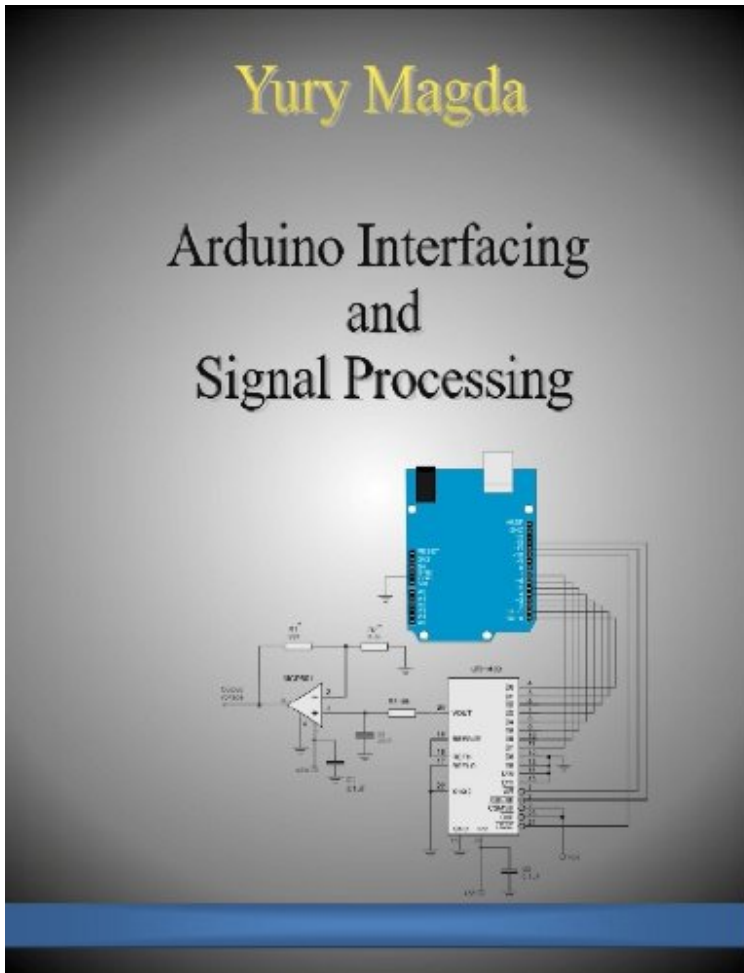


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Arduino Interfacing and Signal Processing (English Edition)



Par Yury Magda

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Description :

Prsentation de l'diteurArduino compatible boards are undoubtedly the most popular development tools used by hobbyists and professional developers. Numerous measurement and control systems based upon Arduino-compatible devices have already been designed and will be designed in future. This book can help readers to considerably expand capabilities of Arduino-based systems by using additional electronic circuits. The book

contains various projects which illustrate processing small signals with instrumentation amplifiers, measuring frequencies of analog signals (sine wave, triangle and sawtooth). The material of the book also covers digital signal synthesis with digital-to-analog converters and digitizing analog signals with popular

high-resolution analog-to-digital converters. The readers will find practical designs of digitally programmable oscillators and signal generators of various waveforms. The book describes practical aspects of interfacing and programming high-precision wide-band sinusoidal, triangular and rectangular waveform generators built around popular Direct Digital Synthesizer (DDS) chips AD9833 and AD9850. Numerous

projects illustrate signal measuring with Voltage-to-Frequency and Frequency-to-Voltage converters, expanding Arduino inputs and outputs, frequency doubling, using digital potentiometers and analog comparators and more. All projects were assembled and tested on the Arduino Uno R3 and Arduino Nano boards. The book also contains a few projects using the Arduino Due board. The accompanying source code is simple and explained in detail, so the readers can easily improve it, if necessary. Presentation of Arduino compatible boards are undoubtedly the most popular development tools used by hobbyists and professional developers. Numerous measurement and control systems based upon Arduino-compatible devices have already been designed and will be designed in future. This book can help readers to considerably expand capabilities of Arduino-based systems by using additional electronic circuits. The book contains various projects which illustrate processing small signals with instrumentation amplifiers, measuring frequencies of analog signals (sine wave, triangle and sawtooth). The material of the book also covers digital signal synthesis with digital-to-analog converters and digitizing analog signals with popular high-resolution analog-to-digital converters. The readers will find practical designs of digitally programmable oscillators and signal generators of various waveforms. The book describes practical aspects of interfacing and programming high-precision wide-band sinusoidal, triangular and rectangular waveform generators built around popular Direct Digital Synthesizer (DDS) chips AD9833 and AD9850. Numerous projects illustrate signal measuring with Voltage-to-Frequency and Frequency-to-Voltage converters, expanding Arduino inputs and outputs, frequency doubling, using digital potentiometers and analog comparators and more. All projects were assembled and tested on the Arduino Uno R3 and Arduino Nano boards. The book also contains a few projects using the Arduino Due board. The accompanying source code is simple and explained in detail, so the readers can easily improve it, if necessary.