Microcontroller experiments through
Arduino & Scilab

The make-in India drive cannot succeed with software alone: a good mastery of hardware is equally important. Research and Development in both software and hardware have to go hand in hand to establish a world standard manufacturing industry. To excel in manufacturing, industrial automation is indispensable. Microcontrollers form the basis of industrial automation.

This book explains how to interface the popular open source microcontroller Arduino Uno board with a computer, running MS Windows or Linux. It explains how one can do this through open source software Arduino Integrated Developmen Environment (IDE). It also explains how one can effectively use the state of the art open source computational engine Scilab. The use of the graphical programming environment Xcos of Scilab is illustrated. Using the code that comes with this book, one can learn to work with LEDs, LDRs, DC Motors, Push Buttons, Thermistors and Servo Motors. Easily available low cost hardware, such as an Arduino Uno board and a Shield containing sensors and actuators have been used in all demonstrations.

This book is the result of the work done by the FOSSEE (free and open source software for education) team, IIT Bombay. FOSSEE has been promoting popular open source software through collaborative activities, such as Textbook Companions, Lab Migration and Spoken Tutorials. The Arduino experiments of this book have been validated on the affordable, but versatile, FOSSEE Laptop. The FOSSEE project is supported by the National Mission on Education through ICT, MHRD, Government of India.

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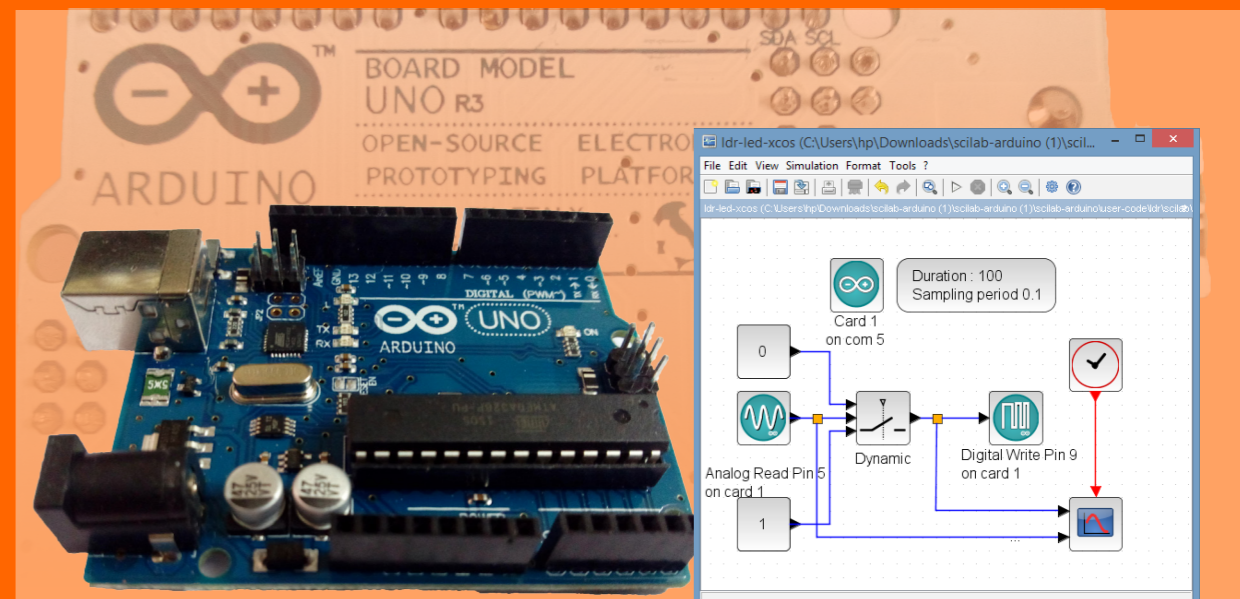# Microcontroller experiments through
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