Educational Workshop Series

Five-Day Introductory Workshop on
HAVING FUN WITH SCRATCH PROGRAMMING & SENSOR BOARDS
(For 8-11 year olds)

Learn	• Introduction to the fundamentals of Scratch • Creating interactive software projects on Scratch • Connecting Scratch to a hardware sensor board • Creating games and projects combining software and hardware
Organized by	• Exciting Science Group • AntFarm Robotics Pvt Ltd • Venture Center – a Technology Business Incubator
Co-sponsored by	DSM India Innovation Center

For whom	• Children: 8 to 11 year olds
	• Maximum 35 seats per wave
	   o 21 seats (for those who do not bring their own laptops; 3 persons sharing 1 PC); 14 seats (for those who bring their own laptops)
	• Booking schedule:
	   o 30 seats: First-come-first-serve
	   o 5 seats: Reserved for children from underprivileged schools

When	• **Wave 1 (First batch): Monday 13 May 2013-Friday, 17 May 2013.** • **Wave 2 (Second batch): Monday 20 May 2013-Friday, 24 May 2013.** • **Wave 3 (Third batch): Monday 27 May 2013-Friday, 31 May 2013.**
Where	E Class Room, Venture Center, NCL Innovation Park Dr. Homi Bhabha (Pashan) Road, Pune-411008
Contact	**For registrations:** Ms. Lipika Biswas Venture Center, 100, NCL Innovation Park, Dr. Homi Bhabha Road, Pune – 411008; Phone: +91-20-64011023; +91-20-25865877 Email: eventsdesk@venturecenter.co.in **For technical queries:** Ms Shraddha Gargatti Venture Center, 100, NCL Innovation Park, Dr. Homi Bhabha Road, Pune – 411008; Phone: +91-20-64011025 Email: outreach@excitingscience.org
Cost	Free. Prior registration and booking of seat required. Seat is booked against refundable deposit of Rs 500. We expect to make available 1 PC for groups of 3. Children who have laptops are requested to bring their own laptops to enhance their learning experience as well as enable more students to participate.

Introduction

Scratch (scratch.mit.edu) is a graphical programming language developed by the MIT Media Lab (www.media.mit.edu) to create animation, games, and much more. It is designed as a first introduction to structured logic and programming, and allows children to develop their creativity. The Scratch software can also be interfaced to a sensor board so that the software responds to signals from the sensor board. While the software is available freely from the Scratch website, the sensor board was not available India till recently.

This workshop aims to expose 8-11 year olds to the joys of programming. This workshop is meant to provide a general introduction to the fundamentals of scratch. The workshop will comprise classroom lectures, which will be interactive and will convey the excitement of programming using scratch, as well as demo programs, which will enable participants to understand and get familiar with the scratch interface. Special session shall be run to explore the use of Sensor Board to develop interactive projects. The workshop will also have 'group activity' sessions in which participants will learn to create their own games/projects. At the end of the workshop, children should be able to develop their own animation, games and graphic stories.

Course Outline

- ➢ Introduction to scratch programming
- ➢ Demo programs to explore the usage of programming blocks
- ➢ Introduction to variable and data storage basics
- ➢ Use of control statements/loops
- ➢ Making Graphics and Sound effects. Creating interactive software projects on Scratch
- • Introduction to Sensor Board. Connecting Scratch to a hardware sensor board
- • Game demonstrations using Sensor Board. Creating games and projects combining software and hardware

Schedule

Time	Session title	Lead	Venue at Venture Center
13th May 2013	**INTRODUCTION TO SCRATCH**		
0930-1000	Registration		Foyer
1000-1010	Introduction to the workshop and faculty	SG	E Classroom
1010-1115	Lecture cum Activity: Introduction to Computer Basics. Introduction to Scratch Programming Interface Examples of what you can do with Scratch and the Sensor Board	SB	E Classroom
1115-1130	Break		Foyer Area
1130-1230	Lecture cum Activity: Getting Started with Scratch. Introduction to Motion Blocks and Looks. Making a Character move in Scratch Project 1:Random picture and movement; Pick your own sprite	SG	E Classroom
14th May 2013	**MOTION;CONTROL STATEMENTS/LOOPS**		
1000-1115	Lecture cum Activity: How to Repeat Code using Loops? Variables and Data Storage Basics ("Buckets" and "water"). Running Codes based on conditions: if else-if	SG	E Classroom
1115-1130	Break		Foyer Area
1130-1230	Project 2: Pong Game with Score Board	SG	E Classroom
15th May 2013	**GRAPHICS AND SOUND EFFECTS**		
1000-1115	Lecture cum Activity: Making Graphics: How to Draw in Scratch? How to record sound and playback in Scratch?	SG	E Classroom
1115-1130	Break		Foyer Area
1130-1230	Project 3: Give your sprite some sound and action.	SG	E Classroom
16th May 2013	**INTRODUCTION TO SENSOR BOARD**		
1000-1115	Introduction to Sensor Board. How to Interface the Sensor Board in Scratch. Making a Piano using Sensor Board	SB	E Classroom
1115-1130	Break		Foyer Area
1130-1230	Project 4: Make your own Game Ideation session on your own (group) projects	SB & SG	E Classroom
17th May 2013	**GAME DEMONSTRATIONS**		
1000-1115	Lecture cum Activity: Finishing Touches. Demonstrations (Games)	SG	E Classroom
1115-1130	Tea Break		Foyer Area
1130-1230	Project 5: Build your own (group) project with help from faculty and volunteers	SG	E Classroom
1230-1300	Workshop feedback, certificate distribution	ESG team	E Classroom

WORKSHOP FACULTY:	
	Shraddha Gargatti **Associate – Exciting Science Group** Shraddha has a BE in Electronics and Communication, and has previously worked as a Science Communicator in the DST-Max Planck Institute-Indian Railways supported Science Express. Shraddha is managing the current activities of the Exciting Science Group, and will seek to expand the scope of its activities in future.
	SUBHOJIT BASU **Founder, AntFarm** **Profile:** Indian National Maths Olympiad awardee, 1998. Design Engineer with experience in both Digital and Analog Design. Experienced in a multitude of EDA and simulation tools. Strong interests in Embedded systems design and multicore code design. Hobby Robotics fan and entrepreneur in related field. Puzzle solving enthusiast. Founding member of IIT Kharagpur Robotics Club. **Education :** B.Tech (H) '03 , M.Tech '04 (Indian Institute Of Technology , Kharagpur) **Experience:** Component Design Engineer for Intel India's first Multicore project; Co-author of Enhanced Structural Tester Based Functional Test methodology for Intel Multicore processors; Mixed-Signal Design Consultant for National Semiconductor's Sponsored Project at IIT Kharagpur; Currently Adjunct Faculty of Electrical Engg., College Of Engg. , Pune

Course includes
➢ Lectures ➢ Demo games ➢ Notebook, pen, pencil ➢ 1 PC shall be shared by groups of 3 ➢ If you bring your laptop, the instructors will help you with installations ➢ Each PC / laptop shall be provided (on a returnable basis) a Sensor Board for use during the workshop. Sensor boards for taking home can be purchased from AntFarm at the venue at a discounted price. ➢ Certificate of Participation issued by Exciting Science Group ➢ Workshop includes soft drink and snacks during the break at Foyer Area

About the Organizers

	About Exciting Science Group The Exciting Science Group comprises of scientists from two of Pune's best research institutions, NCL and IISER-Pune. This initiative is aimed at conveying the excitement of science and technology to school students. The motivation behind our programme is to attract the brightest talent from the next generation towards careers in science and technology, since it will be these students who will drive tomorrow's science and innovation based economy. For more information, visit**: www.excitingscience.org**
	About AntFarm ANTfarm Robotics' main objective is to introduce innovative robotic toys at an affordable price. ANTfarm believes in making smart toys for smart kids, and provide learning opportunities for kids from an early age. ANTfarm is based out of Pune, India and is incubated by Venture Center, a Technology Business Incubator. More information can be found at www.hobbykits.co.in , which has hobby kits for sale for 10+ kids.
	About Venture Center Entrepreneurship Development Center (Venture Center) – a CSIR initiative – is a Section 25 company hosted by the National Chemical Laboratory, Pune. Venture Center strives to nucleate and nurture technology and knowledge-based enterprises by leveraging the scientific and engineering competencies of the institutions in the Pune region in India. The Venture Center is a technology business incubator supported by the Department of Science & Technology's National Science & Technology Entrepreneurship Development Board (DST-NSTEDB). Venture Center's focuses on technology enterprises offering products and services exploiting scientific expertise in the areas of materials, chemicals and biological sciences & engineering. For more information, visit http://www.venturecenter.co.in/

About the Sponsors

	About DSM DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in Life Sciences and Materials Sciences DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, pharmaceuticals, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials. For more information, visit: www.dsm.com