

Home Ahmedabad Entertainment Columns News Sports Travel Live TV All

SEARCH

Travel Food Sunday Read You SciTech Lifestyle Specials

Home Others Specials

LIFE WITH PI

By Ashwin Khan, Ahmedabad Mirror | Sep 2, 2015, 02:00 AM IST

Like 2

Tweet 3

G+1 1

Share

Comments

A A More



A 16-year-old in a remote village in Maharashtra wants to gather scientific data on local biodiversity. Others are learning to predict the weather. Unbelievable as it sounds, children in remote tribal schools in Maharashtra are experiencing a digital wonderland, otherwise quite out of their reach, with the help of Raspberry Pi. And they owe it to Dr Girish Arabale, who introduced the versatile, portable and immensely powerful credit card-sized Pi to them in a bid to improve their lives.

"After completing my PhD in Carbon Nanostructures from National Chemical Laboratory (NCL) in 2009, I left for Sungkyunkwan University in South Korea for further studies. I was first introduced to a Raspberry Pi at the university, where I started using the computer for scientific research," says 35-year-old Arabale, who's currently

incubating a venture to build a gadget that can analyse soil conditions at NCL Venture Center. He was struck by the idea of doing something useful with the minicomputer after returning to Pune last year from South Korea. Arabale started the project in June this year, and has so far conducted two separate workshops at Anudanit Primary and Secondary Ashram School in Shendi, Adarsh Ashram School Bhandardara Camp in Akole and Government Ashram School in Muthkhel, located within a distance of 20km from each other in Ahmednagar.

The three-day workshops were organised free of charge in mid-June — both teachers and students understood computer basics, but were unfamiliar with the concept of programming. The workshops familiarised students and teachers with a Raspberry Pi, its operating system and use of basic applications like spreadsheet. The children, aged between 12-16 were bowled over by how the diminutive Pi attached to a central processing unit and graphics processor, costing Rs 3,000, was just as capable as a desktop. They are now learning to code and use the stripped-down minicomputer to undertake hitherto impossible science projects. From learning to attach sensors to a Raspberry Pi to predict the weather to observing how chlorophyll absorbs light during photosynthesis by attaching an infrared camera to a Pi, these kids are entering a whole new world of knowledge.

"My goal is to introduce the tinkering culture to these kids and wean them off from the habit of learning by rote," Arabale shares. To his surprise, the children were exceptionally receptive to his idea. "We lead difficult lives here. There is no electricity most of the time and we know nothing about technology. But learning to use a Raspberry Pi to solve math problems and predict the weather was an empowering experience," smiles 16-year-old Sharad Tatale, a class 10 student of Anudanit Primary and Secondary Ashram School. Tatale is looking forward to work on a project that will involve attaching a camera to a Pi and make time-lapse videos of how plants grow in his region.



"My village is a biodiversity hotspot. We have so many plants growing here — I could use a Pi to gather scientific data and find out how many insects and birds feed on the plants annually," says Tatale. Like Tatale, most of his friends who participated in the workshop, barely knew anything about computers for the lack of an experienced computer instructor at their institute. Going by its size, the students first thought it was a toy, but they quickly grasped how its interface worked. And although they were just introduced to the basics, the kids make it a point to practise the lessons learned at the workshop almost every day, like using a spreadsheet, writing a few lines of code in Python, a computer language that runs a Pi and familiarising themselves with Linux, an operating system that's compatible with a Raspberry Pi.

Earlier this year, a similar initiative was launched in Kerala to teach computer programming to school children by giving them Raspberry Pi computer kits. Compared to that state-funded programme, Arabale is a one-man army. "I was surprised when Girish volunteered to teach us how to use a Raspberry Pi. As such, nobody is interested in teaching us anything about technology," rues Sudhir Shedge, a teacher at Anudanit Primary and Secondary Ashram School. The internet is flooded with inspiring stories of how ordinary people are creating extraordinary things using the minicomputer.

For instance, a group called FishPi is getting ready to put the Raspberry Pi to sea by fitting the computer to a drone boat. The boat's navigational system will be controlled by the computer — measuring 20 inches from stern to stern, the vessel is set to cross the Atlantic and collect scientific data in the process. Will Arabale's project yield such fruitful results? "I am just about getting started. Right now, none of the schools have access to a Raspberry Pi although the institutes do have a computer lab that's gathering dust," he says. The many advantages of a Raspberry Pi is that you can experiment with its insides. "You can't dare do that with an Apple laptop for fear of spoiling it," reasons Arabale.

Also, learning Python is comparatively easy than mastering to code using the computer language C. So to make sure the kids don't forget what they have learnt, Linux has been installed on some desktops at the institutes. Few teachers have been introduced to Python and the teachers in turn impart the lessons they were taught to the students. "I have just introduced the teachers to programming basics. This is a longterm project — I plan to visit the schools in September to teach them programming lessons. With time, I will increase the frequency of my visits to fast-track the children's learning curve," adds Arabale.

Much to Arabale's joy, both students and teachers are eagerly waiting for the next workshop. "We are thankful to Girish for opening our eyes to the wonderful device. Our schools and villages are located so far away from modernity that we urgently need the aid of technology to make our way ahead," says Pandit Tanaji Kadam, who teaches at Adarsh Ashram School. And Tatale is keen on undertaking an experiment Arabale talked about in his first meeting. "Girish told us we could attach sensors to a Raspberry Pi to predict weather. That sort of information would be useful for my village," he says excitedly.

Another student, 14-year-old Laxman Gawale, who studies in the same school in class nine, adds: "Although we are surrounded by beautiful hills we face hardships every day. I hope I can invent something with the help of the Pi to lead a comfortable life." Apart from being competitively priced, the minicomputer — traced back to 2006 when Eben Upton, Rob Mullins, Jack Lang and Alan Mycroft, working at the University of Cambridge's Computer Laboratory in the UK, conceptualised a tiny and affordable computer for kids — is a veritable catalyst of creativity.

"You can't tinker with expensive computers, but since a Pi costs so little, you can try a wide variety of science experiments with it," explains 16-year-old Rushikesh Patil, an electronics hobbyist, who's studying at a coaching centre in Mumbai to prepare for the IIT Joint Entrance Examination (JEE). In January this year, Patil had come to Pune all the way from Satara just to attend a workshop on Raspberry Pi conducted by Arabale. "A Raspberry Pi is also easily programmable," adds Patil.

Given the Pi's powers, Arabale has grand plans for the future. He wants every student to have a Raspberry Pi that they can attach to a camera and observe how plants grow in the region. The data collected from the experiment will be directly made available to a professor of botany in Pune. "I hope my endeavour will inspire some kid in this backward area to become the next Bill Gates or Steve Jobs," he signs off.

You Might Also Like

Recommended By Colombia

From around the web

More from Ahmedabad Mirror

Recommended By Colombia

MOST READ

TODAY THIS WEEK MONTH **ALL TIME**

ACROSS AHMEDABAD MIRROR >>

SEX@RS 450 UNDER POLICE'S NOSE

Amdavad gears up for No Car day

Sex and the site

The origin of Saturn's ring, satellites...

17-yr-old gang-raped in Maninagar hotel

Is this how you protect us, cops?

Patidars leave city in shambles

Patels, OBCs take giant leap forward

Gigantic water ice slab found on Mars

FROM OTHERS >>

TODAY THIS WEEK MONTH **ALL TIME**

The origin of Saturn's ring, satellites...

Gigantic water ice slab found on Mars

The Mastani Mystery

BAND WITH THE BEST

Asus reveals first water-cooled laptop

Leaks reveal two new Nexus smartphones

12-week fat loss guide

Punjabi tunes with Buddha bar vibes

Five fat loss tips that actually work

MOST COMMENTED

TODAY THIS WEEK MONTH **ALL TIME**

ACROSS AHMEDABAD MIRROR >>

**Cancel GPSC pre exam result:
Students t...****Patel agitation will intensify: Hardik****Patidars leave city in shambles****Five fat loss tips that actually work**

FROM OTHERS >>

TODAY THIS WEEK MONTH **ALL TIME****Five fat loss tips that actually work**

POLL DO YOU THINK THE EDN MIN IS FINDING A SOLUTION AGAINST THE STATEWIDE DISCONTENT OF TEACHERS, BY ROPING IN RETIRED TEACHERS TO EVALUATE ANSWER SHEETS?



Yes



No



Can't Say

Pick your favorite and click vote

3 + 0 =

[MORE POLLS](#)

- Most Shared
- Most Read
- Most Commented
- [Shikhar Dhawan happy w comeback ahead of South series](#)
- [Social Humour: OMG! #ModiFindsCamera and r Mark Zuckerberg](#)
- [India pips US, China as N foreign direct investment destination](#)
- [Women who have never h give 'virgin birth' through](#)

Recent Messages (0)



Please rate before posting your Review

Rate this

Add your comment here

Characters Remaining: 3000

OR PROCEED WITHOUT REGISTRATION

Full Name	Email	Location
<input type="text"/>	<input type="text"/>	<input type="text"/>

SIGN IN WITH

Refrain from posting comments that are obscene, defamatory or inflammatory, and do not indulge in personal attacks, name calling or inciting hatred against any community. Help us delete comments that do not follow these guidelines by marking them offensive. Let's work together to keep the conversation civil.

POST

[X](#)
Be the first one to review.

<ul style="list-style-type: none"> Mumbai Mirror Bangalore Mirror Pune Mirror Times of India Economic Times E-paper M-Paper Lifehacker India Gizmodo India Happy Trips Weekend Getaways from Ahmedabad Go Cricket Gujarati News 	<table border="1"> <thead> <tr> <th>Ahmedabad</th> <th>Columns</th> <th>Entertainment</th> <th>News</th> <th>Sports</th> <th>Others</th> </tr> </thead> <tbody> <tr> <td>Cover Story</td> <td>Ask The Sexpert</td> <td>Bollywood</td> <td>India</td> <td>Cricket</td> <td>Travel</td> </tr> <tr> <td>Crime</td> <td>Scoop</td> <td>Hollywood</td> <td>World</td> <td>Others</td> <td>Food</td> </tr> <tr> <td>Civic</td> <td>Others</td> <td>Hip & Happening</td> <td>Business</td> <td></td> <td>Sunday Read</td> </tr> <tr> <td>Others</td> <td>Columnists</td> <td></td> <td></td> <td></td> <td>You</td> </tr> <tr> <td></td> <td>Letter to the Editor</td> <td></td> <td></td> <td></td> <td>Sci Tech</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Life Style</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Specials</td> </tr> </tbody> </table>	Ahmedabad	Columns	Entertainment	News	Sports	Others	Cover Story	Ask The Sexpert	Bollywood	India	Cricket	Travel	Crime	Scoop	Hollywood	World	Others	Food	Civic	Others	Hip & Happening	Business		Sunday Read	Others	Columnists				You		Letter to the Editor				Sci Tech						Life Style						Specials
Ahmedabad	Columns	Entertainment	News	Sports	Others																																												
Cover Story	Ask The Sexpert	Bollywood	India	Cricket	Travel																																												
Crime	Scoop	Hollywood	World	Others	Food																																												
Civic	Others	Hip & Happening	Business		Sunday Read																																												
Others	Columnists				You																																												
	Letter to the Editor				Sci Tech																																												
					Life Style																																												
					Specials																																												

[About Us](#) [Advertise with us](#) [Terms of Use and Grievance Redressal Policy](#) [Privacy Policy](#)

Copyright © 2015 Bennett, Coleman & Co. Ltd. All rights reserved. For reprint rights:Times Syndication Service