BYTE QUEST

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Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

- Good ,bad or indifferent if you are not investing in new technology , you are going to be left behind.

  -Philip Green

- Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

  -Stewart Brand.

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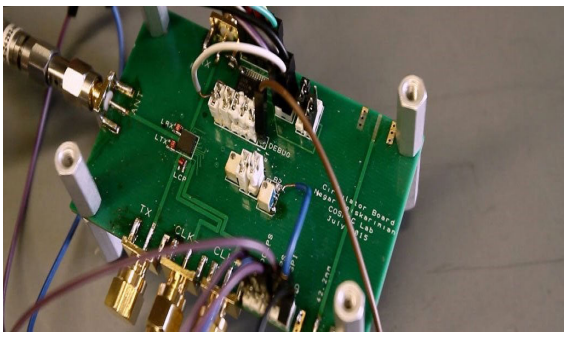
THIS NEW WI-FI CHIP DOUBLES WIRELESS SPEED FROM A SINGLE ANTENNA

Scientists in the US have made a major advancement in wireless technology, developing a Wi-Fi chip that only needs one antenna, instead of two, for transmitting and receiving. While this was possible before, the bottleneck with transmitting and receiving from the same antenna meant that each function had to take turns, which throttles the capacity by half. This new chip solves that limitation, and in doing so, doubles the capacity (and speed) of wireless signals with a single antenna. The system, called full-duplex communications, involves having the wireless transmitter and receiver of a radio working at the same time at the same frequency. The component that makes full-duplex possible in the team's new chip is called the circulator. The circulator breaks Lorentz Reciprocity – a principle in electromagnetism that dictates that waves

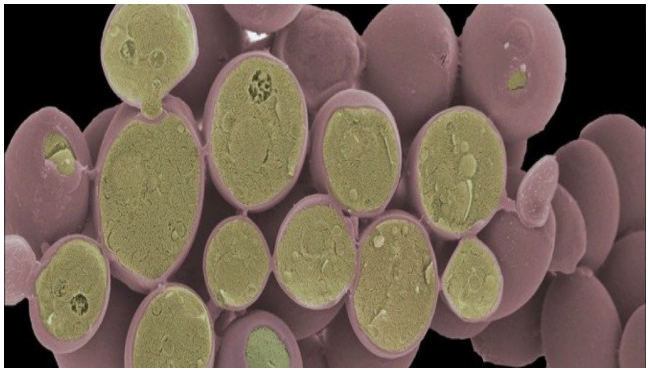


must travel in the same manner in forward and reverse directions. The researchers used a series of switches that emulate the effects of magnetism by rotating signals across a set of capacitors. This ends up negating reciprocity and enabling two-way signals on a single radio antenna.

K.SOWMYA(CSE-A 2/4)

BIOLOGISTS JUST BUILT A PIECE OF SOFTWARE THAT CAN PROGRAM LIVING CELLS LIKE A COMPUTER

Researchers developed a new kind of software that makes it possible to genetically engineer, a cell to perform any kind of function, via a simple programming language. They have programmed bacteria to produce biofuel, and pump out antibiotics. The software is called Cello, by using this cells respond to their environment, make decisions,

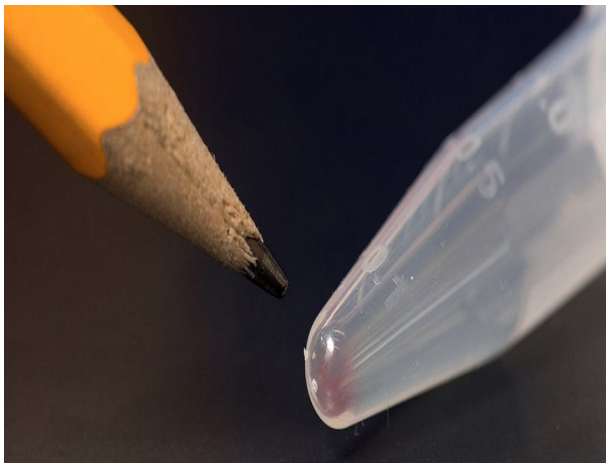


build structures, and coordinate tasks.

As scientists attempt to do increasingly more complex things with living cells, these kinds of programs ideally simplify instructions to build and engineer more efficient cells. Basically, Cello lets you input your instructions, such as what kind of promoter you want to use and how you want the ‘circuit’ or program to run, and it will spit out a sequence for a DNA plasmid. This means that biologists can take these custom-made plasmids and use them to add external DNA into the genome, creating their ideal cell.

RAMYA(CSE-B 3/4)

SCIENTISTS HAVE FIGURED OUT HOW TO STORE DIGITAL IMAGES IN INDIA



DNA - or deoxyribonucleic acid, to give it its full title - is one of the basic biological building blocks of all living organisms, containing the genetic code that plays a large role in making us who we are. And now scientists have managed to use the same molecules to store digital photographs and retrieve them intact.

If the process can be refined and scaled up, that means we could see the end of data centres used by the likes of Facebook and Amazon, says the team behind the technology. Because DNA is so microscopic in size, the researchers calculate that files that would typically be stored in a data centre the size of a supermarket could be squashed into a space the size of a sugar cube.

The University of Washington team, in partnership with engineers from Microsoft, was able to encode four digital images into strings of DNA. This required converting the 1s and 0s of the files into the four basic elements of DNA - adenine, guanine, cytosine, and thymine. But even more challenging was reversing the process without any errors.

If you're particularly interested in compression algorithms, Huffman coding was the approach they used.

This is an example where we're borrowing something from nature - DNA - to store information," he adds. "But we're using something we know from computers - how to correct memory errors - and applying that back to nature."

PRAMOD(CSE-B 2/4)