BYTE QUEST

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Department Of Computer Science and Engineering

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Contents:

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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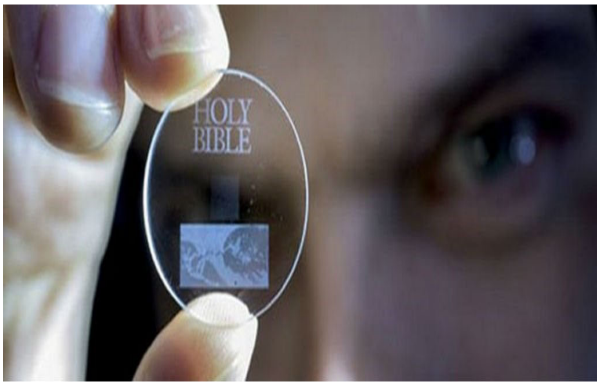
THIS TINY GLASS DISC CAN STORE 360TB OF DATA FOR 13.8 BILLION YEARS

It's estimated that humans are producing the equivalent of 10 million Blu-ray discs' worth of data every single day - and all of those ones and zeroes have to be stored somewhere. Now researchers in the UK just might have the solution: a five-dimensional (5D) digital data disc that can store 360 terabytes of data for some 13.8 billion years. To create the data disc, researchers from the University of Southampton used a process called femtosecond laser writing, which creates small discs of glass using an ultrafast laser that generates short and intense pulses of light. These pulses can write data in three layers of nanostructured dots separated by 5 micrometres (that's 0.005 mm).So where do the five dimensions come from? First there's the three-dimensional position of each dot within the layers, and then the extra

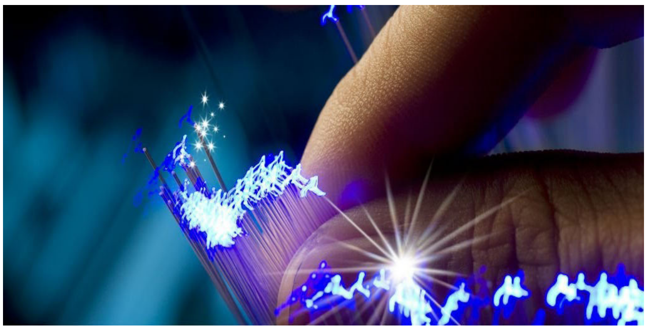


dimensions are the size and orientation of the dot. The nanostructures created by the technology can be read using an optical microscope in tandem with a polariser (a filter designed to block specific polarisations of light).

A.SRIHITH(CSE-A 2/4)

SCIENTISTS JUST SET THE RECORD FOR THE FASTEST DATA TRANSMISSION RATE EVER

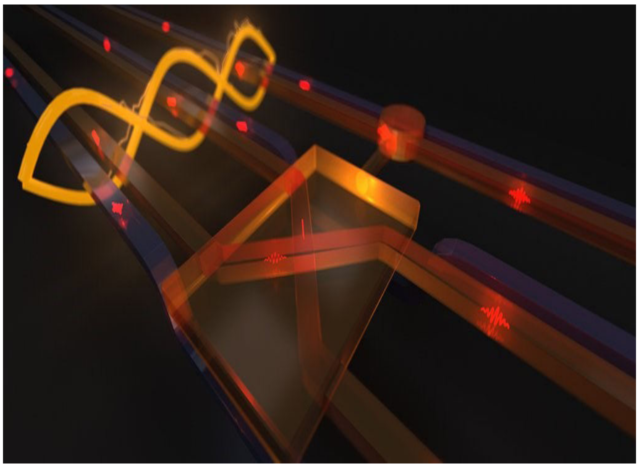
A new record for the fastest ever data transmission rate between a single transmitter and receiver has been set by researchers in the UK, who achieved a rate of 1.125 terabits per second using an optical communications system. Optical communications systems allow for super-speedy data transmission by sending pulses of light through an optical fibre instead of using an electric current to transfer info.



On the most basic level, it involves a transmitter, such as a light-emitting diode, that converts and transmits an electronic signal into a light signal, and a receiver, which converts the light back into electricity. Using high-bandwidth super-receivers enables us to receive an entire super-channel in one go. Super-channels are becoming increasingly important for core optical communications systems, which transfer bulk data flows between large cities, countries or even continents.

P.HONEY(CSE-B 2/4)

SCIENTISTS JUST BUILT THE MOST PROMISING QUANTUM COMPUTING CIRCUIT



Now Australian researchers have reported building the first ever quantum Fredkin gate - a type of logic gate thought to be the key to quantum computing - that can operate on photonic qubits rather than regular bits.

The Fredkin gate (also known as a CSWAP gate) is a type of reversible circuit that that swaps three inputs onto three outputs. "So if the first of the three bits is 1, then the last two bits are swapped from either 0 to 1 or 1 to 0, but if the first bit is already 0, then the last two bits won't be swapped,".

That process, which sounds fairly simple, is crucial to being able to build a real, functional quantum computer, and until now, scientists have struggled to build a Fredkin gate that works with quantum bits (qubits), not just regular bits.

Rather than using electrical circuits, quantum computing uses qubits to represent 0s and 1s. These qubit particles - magnetically suspended in an extremely cold environment - can be in the state of 0, 1, or both at the same time, which means the computing power at our disposal would increase exponentially.

Usually, the Fredkin gate requires the integration of five logic operations, but the researchers were able to use the quantum entanglement of photons (particles of light) to implement the same operation directly. This means small- and medium-scale quantum computers are now more feasible than ever, and it should help in the development of secure quantum communication protocols too.

HARINI (CSE-B 2/4)