

DANIEL BURRUS'

# TECHNO TRENDS

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THE BIG IDEAS THAT ARE  
CHANGING EVERYTHING

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## Why Martin Luther King, Jr. Did NOT Say, "I Have A Plan"

By Daniel Burrus, CEO of Burrus Research

When Martin Luther King, Jr. stood on the steps of the Lincoln Memorial fifty years ago and spoke to a great people about their greater future, he didn't say, "I have a plan." Instead, he shared a dream that provided a vision of equality and hope for a struggling nation. His dream was not to get elected and not to become rich; it was a dream that was to and for everyone—one meant to elevate the national conversation by providing a goal that at the time seemed impossible but would be worth achieving for all.

In the months, years, and now decades that followed that amazing speech, his dream became our dream and great strides forward happened and continue to happen every day. Whenever I think of the "I Have A Dream" speech, I can't help but think of another great speech that shared a dream and that became a vision that shaped our nation.

As you have most likely guessed, I'm referring to the 1961 "Special Message to Congress on Urgent Needs" speech, where a young president Kennedy painted an insanely bold picture of our future in the language of a dare: "We'll put a man on the moon and get him back safely—within the decade."

The truly crazy thing, of course, is that *we did*. What Martin Luther King, Jr. and John F. Kennedy employed was what I call *Futureview*, and right now it may be our most pressing national challenge.

Futureview is your ability to project yourself into the future and then look back at your present position from that future point of view. Futureview is not the same thing as a goal, plan, ambition, or aspiration. It is not something you *hope* for or *try* for. Futureview is the picture you hold, for better or for worse, of *what you expect and believe* about your future.

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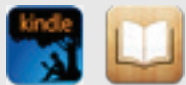
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## TECHNOLOGY NEWS HIGHLIGHTS

### Open Source Satellites

In the first example of crowd-funded space exploration, a new generation of satellites was recently deployed that will allow everyone affordable access to space-based experimentation.



The ArduSat-1 and

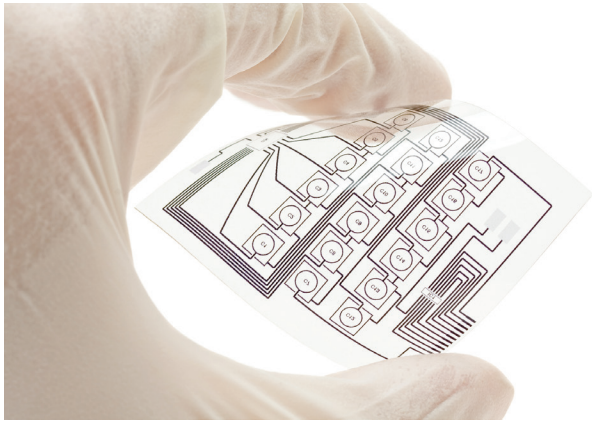
ArduSat-X are part of a family of satellites known as CubeSats. Each 10-centimeter square box carries a variety of sensors and devices from cameras to Geiger counters. For as little as \$250, individuals, schools or organizations can purchase secure time slots to run their own programs for experimentation (e.g. radiation monitoring), research (e.g. modeling of the magnetosphere), professional development (e.g. space mission design) or even entertainment (e.g. geo-caching in space). The satellites will remain in orbit for three to seven months before burning up as they re-enter the atmosphere, but the developers already have plans to launch additional fleets in the future.

The project represents a major shift in opportunity by no longer limiting satellite access to governments and large corporations. An Israeli firm recently partnered with the company to introduce the program in schools with the aim of fostering STEM (Science, Technology, Engineering and Mathematics) education.

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### Electronic Skin

Flexible, bendable electronics have the potential to transform a wide array of devices from medical sensors to computer displays, although coming up with a way to fabricate them reliably has posed a challenge



for manufacturers. Recently, however, researchers demonstrated a mechanically flexible sensor network that can be wrapped around irregular surfaces and visually map variations in pressure.

One of the most complex electronic circuits ever built on plastic, the sensor consists of a nanowire array printed on a thin sheet of plastic which generates a signal when pressure is applied. The signal in turn stimulates an overlapping array of organic light-emitting diodes (OLEDs) the intensity of which is proportional to the amount of pressure applied.

The technology is scalable over relatively large areas and can be integrated with a variety of sensor elements for use in computer interfaces, robotics, vehicle dashboards or even interactive wallpaper.

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## Telescopic Contact Lens

A new contact lens that allows wearers to switch between normal and magnified vision is due to enter a second round of clinical trials later this year. The one millimeter thick lenses have



an embedded, ring-shaped telescope made from aluminum mirrors fitted tightly together. The end result is a lens that provides unmagnified vision in the center while the periphery magnifies images 2.8 times.

Specially modified 3D glasses contain liquid crystals that switch the two sections of the lenses on and off by allowing only light with a specific polarization to pass through. The researchers are also looking at developing a hands-free mechanism that uses low power infrared light to switch between the two modes when they blink, for example.

Although initial models were built using polymethyl methacrylate (PPMA) – the same material used in early rigid contact lenses – future designs will incorporate softer, more permeable plastic to enable longer wear.

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## Digital Keychain



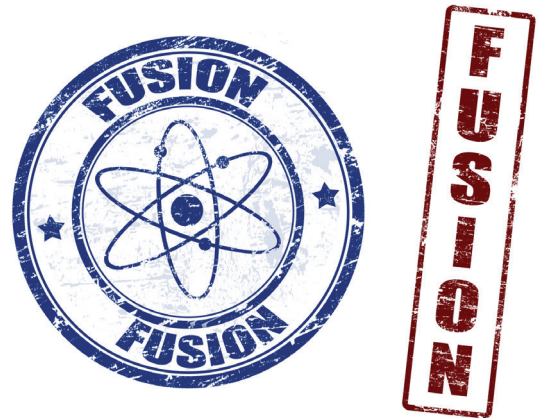
A free app for iOS devices could save you time and money the next time you find yourself locked out. Called KeyMe, it works by storing photos of your keys in the cloud which can later be used to create physical copies at locksmiths or KeyMe kiosks.

To scan a key, it must be placed flat on a white background and photographed front and back from four inches away. The photo, key type and serial numbers are stored for free, but access to the information costs \$10-\$15 (a bargain compared to the cost of a locksmith). At a kiosk, your key can be duplicated from blanks stored inside the machine. If you don't have access to a kiosk, you can have a locksmith make one for you, or you can order duplicates through the mail, which takes two to three weeks.

Keys can also be shared with family members and friends. For security, KeyMe uses advanced encryption, password protection and email alerts of account activity. The system does not ask for address-related information except in the case of mail orders. The app also protects images from "flyby" photography.

For information: KeyMe; phone: 888-380-0394; email: [support@keyme.net](mailto:support@keyme.net); Web site: [www.keyme.net](http://www.keyme.net)

## High Density Fusion



Fusion power is considered by many to be the ultimate source of safe, efficient and carbon-free energy, but scientists have yet to develop a system that can produce more energy than it uses. Now Google has launched an initiative known as "Solve for X" which is aimed at solving global issues, and it's attracted some interesting new approaches to solving the challenges of fusion power.

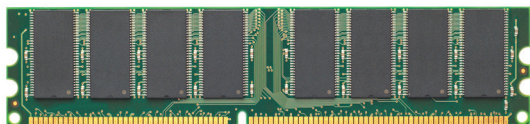
One such approach is called aneutronic fusion, and one of its biggest advantages is that it produces no radioactive waste. It also requires no turbines because charged ions (i.e. electricity) are the direct product of the reaction. Basically, it works by fusing hydrogen nuclei with boron-11 nuclei to briefly form an unstable carbon nucleus. This nucleus instantly breaks up to form three helium nuclei, the energy from which can be converted directly to electricity using a high tech transformer.

According to developers, supplies of hydrogen and boron needed to fuel this type of fusion are sufficient to maintain worldwide power consumption levels for millions of years at a cost ten times less than today's prices. They are looking to government agencies to broaden funding to include alternatives such as these in their plans for long term energy independence.



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## Faster, Denser Memory Chips



In the quest for scalable and reliable high capacity memory, a new approach known as resistive random access memory (RRAM) has been making big waves. Now a technology called Crossbar has been developed which will enable RRAM to be integrated with CMOS and standard manufacturing processes to create memory chips with storage densities up to 40 times that of currently available devices like DRAM and flash.

The new design provides a boost in storage capacity and speed because it's not dependent on moving electrons. Crossbar uses a nanoscale structure of evenly spaced electrodes stacked on top of one another and oriented at 90 degrees to the underlying layer. Data bits are stored at the junction points using an amorphous silicon spacer, which switches between allowing current to flow between the layers and blocking that current.

When a positive voltage is applied to a particular junction, silver nanoparticles form a filament between the silver upper layer and the non-metallic lower layer. When a negative voltage is applied, the process is reversed. Data is then read by testing the conductivity at each junction. And because the spacer retains its state without power, the memory is non-volatile.

In its current version, Crossbar technology can store a terabyte (1,000 gigabytes) of data on a 200 square millimeter chip. In comparison, the densest flash memory currently on the market stores 16 gigabytes in an area of 144 square millimeters.

For information: Crossbar, Inc., 3200 Patrick Henry Drive, Suite 110, Santa Clara, CA 95054; phone: 408-884-0281; fax: 408-884-0283; Web site: [www.crossbar-inc.com](http://www.crossbar-inc.com)  
Wei Lu, University of Michigan, Electrical Engineering and Computer Science, 1301 Beal Avenue, Ann Arbor, MI 48109; phone: 734-615-2306; fax: 734-763-9324; email: [wlu@eecs.umich.edu](mailto:wlu@eecs.umich.edu); Web site: [www.umich.edu](http://www.umich.edu)

## Malaria Vaccination...for Mosquitoes

It's been estimated that malaria claims 660,000 lives per year, and that each day, more than 1,400 children die from a mosquito



bite – about one per minute. Now biologists have found a novel way of warding off this deadly disease by treating mosquitoes with a vaccine that prevents them from becoming carriers. The trick was finding a way to deliver the vaccine. The answer: Give it to humans.

Malaria is caused by a parasite called Plasmodium which is carried around in the gut of mosquitoes by binding to a protein known as AnAPN1.

When you vaccinate people against this protein, they manufacture antibodies which stay in the blood for several years. Any mosquito that bites a vaccinated person ingests the antibodies which, in turn, block the malaria-causing parasite. While this is not a cure for those who are already infected, it represents a crucial step in controlling the spread of the disease.

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For information: Microsoft Corporation, One Microsoft Way, Redmond, WA 98052; phone: 800-642-7676; Web site: [www.microsoft.com](http://www.microsoft.com) or [www.xbox.com](http://www.xbox.com)

## Motion Capture Gaming



Later this year, Microsoft will release an upgraded version of their Kinect sensor system with the Xbox One console. While the original Kinect changed the way we interact with games, the new system promises to change the way our games interact with us.

The concept involves gathering large amounts of data from the gamer and using it to change the course of the game. For example, a high-speed, high-resolution camera can detect intricate and subtle movements such as blinking and muscles flexes, and built-in infrared sensors estimate heart rate through fluctuations in facial blood flow. This information might be used to vary the intensity of the action. Higher quality microphones and improved voice recognition could allow users to invite a confrontation or create a distraction (like screaming at a Zombie).

And more sensors are being developed every day to make gaming more immersive than ever, including eye-tracking systems and body-position detectors that adjust a player's viewpoint based on their movement.

## Why MLK Jr. Did NOT Say “I Have A Plan”

*continued from page 1*

How you view the future shapes how you act in the present; how you act in the present shapes your future. Your Futureview determines the future you.

My concern is that for many Americans today, the Futureview is bleak.

In India and China, the prevailing Futureview is positive. Young and old alike are actually excited about their future. The atmosphere crackles with an optimistic, can-do energy.

Visit the airport in Beijing and ride the train that transports passengers from terminal to terminal. On its walls you'll see posters highlighting Chinese entrepreneurs, their dreams and accomplishments. Get off the train and into the city: everywhere you look, you'll see evidence of seemingly impossible ideas becoming reality. Dreams are everywhere.

The result? These people are moving forward, proactively building their future. They see a bright tomorrow. So they're creating it.

And here in the U.S.? The American Futureview is mostly negative, filled with apprehension and fear. This is the first generation of parents since World War II who do not believe their children will have a better, richer life than they did.

## Making the Impossible Possible

A few years ago, I had the opportunity to converse with Neil Armstrong, the first man to set foot on the moon. He said that in the years following Kennedy's articulation of that goal, NASA engineers would periodically hit a major roadblock and declare the goal impossible.

Each and every time, the response from those in charge was the same: "We're going to the moon."



So the engineers would go back to their benches with a renewed determination to do the impossible. Every time they hit a snag, that unshakable Futureview held them to their task.

"They kept solving those unsolvable problems," Armstrong added, "until one day, there I was—walking the lunar surface."

And here we are, fifty years later. Who is standing up to paint us an insanely bold picture of our future? Who is calling out that impossible dare, naming it so we can all go about the great work of

achieving it?

So far, the answer is, "nobody." Everyone seems too busy casting blame and keeping their eyes glued to the problems.

Here's the good news: the potential for real innovation, growth, and new prosperity in the United States is vastly greater than the prevailing Futureview suggests. We are in a time of massive, technology-driven, transformational change, pregnant with opportunity. Realize it or not, we have an unprecedented ability to create new products, new services, new markets, and new careers — provided we exercise the Futureview it takes to see them.

If we don't, they will remain invisible. And you can't build what you can't see.

The problems we face today are not economic or technical in nature. They are largely in our minds. We need to take a fresh, close look at *what it is we're looking at*.

What is your Futureview? What is the Futureview of your organization? What is the Futureview of the leaders you report to?

From a national perspective, the sooner we start looking at the extraordinary opportunities before us and seeing a picture so insanely bold that we feel compelled to reach for it, the sooner we can get about the business of seizing those opportunities and transforming our society—for generations to come.