

# Mech Newsletter

Issue 5 – Odd 2017



Department of Mechanical Engineering

Issue 5

## Special points of interest:

- > The Bitcoin Bubble
- > Emerging trends in Mechanical Engineering
- > Interesting Engineering
- > The rise and fall of the Mechanical Machines



## The Bitcoin Bubble

PUT the word Bitcoin into Google and you get (in Britain, at least) four adverts at the top of the list: "Trade Bitcoin with no fees", "Fastest Way to Buy Bitcoin", "Where to Buy Bitcoins" and "Looking to Invest in Bitcoins". Travelling to work on the tube this week, your blogger saw an ad offering readers the chance to "Trade Cryptos with Confidence". A lunchtime BBC news report visited a conference where the excitement about Bitcoins (and blockchain) was palpable.

All this indicates that Bitcoin has reached a new phase. The stockmarket has been trading at high valuations, based on the long-term average of profits, for some time. But there is

nothing like the same excitement about shares as there was in the dotcom bubble of 1999-2000. That excitement has shifted to the world of cryptocurrencies like Bitcoin and Ethereum. A [recent column](#) focused on the rise of initial coin offerings, a way for companies to raise cash without the need for a formal stockmarket listing—investors get tokens (electronic coins) in businesses that have not issued a full prospectus. These tokens do not normally give equity rights. Remarkably, as many as 600 ICOs are planned or have been launched. If *everyone* tried to realise their Bitcoin wealth for millions, the market would dry up and the price would crash;

that is what happened with the Mississippi and the contemporaneous South Sea bubbles. And because investors know that could happen, there is every incentive to sell first. When the crash comes, and it cannot be too far away, it will be dramatic.

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## YOUR CAR IS TALKING TO YOU

From fighter-jet windshields to connected-car systems, vehicles are communicating with us like never before. In the world of hands-free technology, Level 1 is cruise control and Level 5 is a driverless car. And though there's endless chatter about driverless cars as the vehicles

of tomorrow, [semi-autonomous vehicles](#) are already here. These cars tend to occupy Level 2, steering and braking on their own on the highway as needed—even changing lanes, moving from ramps to roadways and following cars at set speeds or distances—but often deferring to

the driver in situations like construction zones or dense traffic. A V2V system will sense fast-approaching cars and automatically activate brakes, synch with your smartphone calendar to steer you to appointments, and will even one day alert your home kitchen to pre-heat the oven.

## Get This 4K Camera Drone for Cheap During Black Friday

The drone market is growing, and as new models come out, it gets harder and harder to choose which one is the best. There are plenty of gimmicks out there, but one standing out from the pack is the [Hover 4K Camera Passport Self-Flying Camera Drone](#). Toss it in the air like you would a frisbee, and it will follow you around without a controller.

It uses face-detection technology to fly autonomously, following you wherever you go. And

with some simple hand gestures, you can take aerial selfies and photos straight from its 13-megapixel 4k camera. It's also capable of orbiting around a subject while filming, and shooting a 360-degree panoramic video.

The Hover Camera Passport can fly up to 17 miles per hour, climb vertically up to 16 feet, and has a range of up to 65 feet. Unlike most drones, it is made of a foldable carbon-fiber enclosure for the propellers and

can be shrunk to the size of a paperback, making it perfect for lugging around.



## This Is the New Ford Ranger for 2019

Here at the 2017 North American International Auto Show in Detroit, Ford announced the return of the Ranger pickup truck. It's the sensibly-sized pickup truck seemingly everyone has been demanding, and it's finally back in North America.

Notably, at the same event, Ford officially confirmed [the return of the Bronco in 2020](#).

Hinrichs explained that the Bronco, like the Ranger, will be built at the Michigan Assembly Plant, and he described the Bronco as being a midsize, off-road-capable 4x4. Could the Bronco be based on the upcoming Ranger's underpinnings? It sure seems like that's the hint Ford is dropping.

The Ranger and Bronco have [long been rumored to](#)

[return to Ford's lineup](#). A United Auto Workers representative first revealed that Ford's union contract included Bronco and Ranger plans back in October of 2016. But this is the first time Ford has officially and fully confirmed that these vehicles will return, announcing where the vehicles would be produced and when they would debut to arrive by 2020.

## Best Science Fiction Books of 2017

In 2017, current events made escaping into a sci-fi story all the more appetizing, and there were lots of great choices.

Below are our 13 favorite sci-fi books from 2017. They include stories about underground lunar societies, a Manhattan partially covered in water, and giant robots who question their own

programming. Some are stand-alone books while others are part of a series, but there all the best reads of the year.

In *New York 2140*, sea levels have risen 50 feet and lower Manhattan is covered in water, and the MetLife building serves as a hub for the novel's main characters. It's a dystopian

novel that doesn't really feel like a dystopian novel because the plot is intimately tied to our current reality. We know that the planet is warming and that sea levels will dramatically change big cities in the future. Seeing how characters survive in this future is satisfying. In some ways, the novel is hopeful.

**New York 2140**  
By Kim Stanley Robinson





CES Toyota Concept Car

### Toyota's CES Concept Car Is Something Else

t's got the perfectly round pod-shape, but this is no Prius. Say hello to Toyota's Concept-i, a far-out concept car the automaker unveiled during its press conference at CES 2017. With its gull-wing doors and outrageous styling, it is, shall we say, a bit of a departure from the safe and basic styling you might associate with the brand.

Like all concept cars, this is intended not to hit the road as-is but to demonstrate the car-

maker's vision of the future. As Toyota Research Institute head Gill Pratt explained during the demo, that vision involves two things: making the car safer, and changing the way people interact with their vehicles. As Pratt points out, people have an awfully high tolerance for our own mistakes—we barely bat an eye at the 35,000 people who die every year in car accidents. But "historically, humans have shown nearly zero tolerance" for

deaths caused by flaws in a machine. So true self-driving cars—and their interactions with us—have a long way to go. Toyota hopes the Concept-i, as it accrues miles on the road and makes those lessons part of its AI, will guide that development. Your next Toyota may not have blinking headlights like those on this concept car, but it just might try to become your best friend

### Where will the future's water crises hit hardest?

In some parts of the world, clean [water](#) flows straight from a [tap](#). In others, people trek for miles to reach a potable source. How do we measure the availability of this essential resource? Compare the amount of water a region uses to the size of its water supply. This ratio of supply to demand, known as water stress, often shifts over time. As populations grow or

move around, so too will demand. And as climate change redraws temperature and rainfall patterns, supply will change as well. The nonprofit World Resources Institute mapped how water stress will fluctuate around the globe between now and 2040. Its estimate combines factors such as drought, flooding risk, groundwater levels, and access to water that's

safe for humans to drink. WRI predicts that, while some regions will remain stable—and a few can look forward to stress relief—many will face increasing demand and decreasing supply. Northwestern India Agricultural irrigation accounts for up to 80 percent of global water use, and northwestern India is the worst offender. on groundwater stores.

**“Resources Institute mapped how water stress will fluctuate around the globe between now and 2040”**

The Arid Deserts of Peru



### How some animals survive on almost no water

In the most arid places on the planet, hydration is hard to come by and easy to lose. Every moist breath exhaled, every bead of sweat that drips off, and every emptied bladderful of urine means wasted wetness and a greater risk of death by dehydration. Yet some animals manage to survive in these places. They get by on almost no

water at all, thanks to clever adaptations that make them super savers and hydration scavengers.

#### TORTOISE

In the Mojave and Sonoran deserts, several tortoise species survive off their urine. During times of plenty, their bladders swell to hold around 16 ounces of liquid gold—impressive for a

reptile that's only about 12 inches long. The tortoise can later reabsorb water from its urine to endure a year or longer without a drink.

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The Department of Mechanical Engineering of VIVA Institute of technology commenced in 2009. The department has been running with modern infrastructure and well-equipped laboratories, computational facilities with state of the art hardware and software resources. A team of well qualified and experienced faculty of the department impart knowledge to the students in both basic and real world industrial aspect of Mechanical Engineering courses by adopting simple as well as the latest teaching tools.



The Cassini spacecraft is ending its mission of more than a decade tomorrow morning, September 15. For many, it's like losing a friend ,data collected will live

### Goodbye Cassini!

After 13 years and hundreds of orbits around Saturn, Cassini is in its final fall towards the gas giant. Before the dawn breaks tomorrow, the spacecraft will be vaporized. Now, we reflect on Cassini's many triumphs, and stand vigil to witness the spacecraft's last moments, pushing the boundaries of what engineering can do one final time.

NASA's Cassini spacecraft launched on October 15, 1997, from Cape Canaveral, Florida. It slung

around Venus, Earth, and Jupiter, using the gravitational potential of each planet to redirect its path during its seven-year journey to Saturn. And yet, the data will live on. After rounds of congratulations on a mission well done and condolences on a mission ended, the scientists will get back to work. For some, it will be paperwork. For others, interpreting the final data streamed on Cassini's descent. For many extending beyond the mission team, it will be analyzing the 635 GB of scientific

data collected and adding to the 3,948 papers already published. For more than a few, it will be taking the lessons learned during Cassini and applying them to other missions, including NASA's plans for a Europa Clipper exploring the ocean world circling Jupiter. And for all, it will be a time of reflection.

Goodbye, Cassini. Thank you, and good luck.