

FORGE

A MECHANICAL MISCELLANY

IN THIS ISSUE

An eye in the sky

Page 1

Hyperloop - Redefining travel

Page 3

Structural batteries & Uber Air taxi

Page 4

Student's corner

Page 5

With a light heart

Page 7

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"Impossible is just an opinion, don't buy it."



An eye in the sky

By Ruban M (III Mech B)

Drones by design allow researchers to take to the skies and capture visual information. With the right computing power and programming, this translates any landscape into a data point that can then be used in several ways. It's not all that new to pull information from the visual realm — in fact, this is already happening to a large degree when you look at image-based platforms where images and video are converted into 1s and 0s. Drone technology, however, makes it easier to capture visual information, mine, and utilize data through enhanced computer models. Several industry leaders completed a 4G proof-of-concept mission in Malagash, Nova Scotia, to demonstrate a real-world application of drone technology for a project called the "Digital Vineyard of the Future". Global UAV Technologies provided a 4G-enabled, Procyon 800E

helicopter drone platform with a specialized multi-spectral imaging payload. The company also provided pilots and engineering support for the project. As a result, the project produced diagnostic maps used for crop uniformity optimization, irrigation management, harvest planning and plant health information.

How Drone Technology Is Changing Industries

Drones are becoming commonplace in both the commercial and non-profits sectors. In the near future their use will be even more widespread.

Here are some of the many ways unmanned aircraft can revolutionize how we get things done.

Agriculture: The Environmental Protection Agency already utilizes drone technology to manage livestock and survey crops. In the future farmers and ranchers could use unmanned aircraft to strategically monitor and spray their crops.

Conservation: Unmanned aircraft are being used to monitor endangered species and map the changes in various ecosystems around the globe. As drone technology advances, the use and impact of unmanned aircraft in conservation efforts will expand.

Delivery/fulfillment: Anything the postman can carry can also be delivered by drone. Food, prescriptions, that last-minute birthday gift for your dad—in the near future, there will be big changes in the way packages arrive to our doors.

Disaster mitigation and relief: Drones can go places that humans can't access, so they are an ideal solution for dangerous search

and rescue efforts, as well as for delivering emergency supplies to remote locations and disaster areas.

Logistics: Heavy-duty drones can replace trucks for inventory management and moving goods between warehouses.

Filmmaking and photography: Low-budget filmmakers are already using drones to capture the aerial shots and Hollywood will soon be hiring full crews of drone. Unmanned aircraft are also gaining ground with photojournalists who want to capture breaking news from above.

ISPs: Big tech companies like Facebook and Google are experimenting with solar powered drone technology to beam Internet to remote locals. This could transform connectivity as we know it.

Real Estate: Real Estate listings are poised to change completely with high- definition videos capture by drones that fly through neighbourhoods, and into every room in a listed house.

Conclusion

There are few pieces of technology that excite tech lovers and the general public quite like drones. These unmanned aerial marvels ignite the imaginations of people the world over — and the truth is that we are only scratching the surface of their potential. Rather than flying playthings, drone technology is being unlocked for practical uses in aerial data and information management. While drones have been around for a few years, algorithms and programming are



Hyperloop - Redefining travel

By Nancy Maria Anto (II Mech B)

A Hyperloop is a proposed mode of passenger and/or freight transportation, first used to describe an open-source vactrain design released by a joint team from Tesla and SpaceX. A hyperloop is a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient. Elon Musk's version of the concept, first publicly mentioned in 2012, incorporates reduced-pressure tubes in which pressurized capsules ride on air bearings driven by linear induction motors and axial compressors.

Hyperloop Alpha concept was first published in August 2013, proposing and examining a route running from the Los Angeles region to the San Francisco Bay Area, roughly following the Interstate 5 corridor. The Hyperloop Genesis paper conceived of a hyperloop system that would propel passengers along the 350-mile (560 km) route at a speed of 760

mph (1,200 km/h), allowing for a travel time of 35 minutes, which is considerably faster than current rail or air travel times.

Opensourced:

The Hyperloop concept has been explicitly "open-sourced" by Musk and SpaceX, and others have been encouraged to take the ideas and further develop them. SpaceX built an approximately 1-mile-long (1.6 km) subscale track for its pod design competition at its headquarters in Hawthorne, California.

The announcement by Virgin Hyperloop One, lays the groundwork for a hyperloop system capable of travelling between the Indian cities of Pune and Mumbai — about 100 miles by road — in 25 minutes. Under the proposal, the final route would be built within seven years, following the successful completion of a test track.



Structural batteries using vehicle's frame

By Sarah M & Sneha B (I mech B)

A study led by Chalmers University of Technology, Sweden, has shown that carbon fibers can work as battery electrodes, storing energy directly. This opens up new opportunities for *structural batteries*, where the carbon fiber becomes part of the energy system. Not only does this mean increased energy storage capacity, but the use of this type of multifunctional material can contribute to a significant weight reduction in the aircraft and vehicles of the future.

Carbon when having tightly bonded molecules is a bad conductor of electricity for example, diamond, but when having loosely bonded molecules is a very good conductor of electricity for example graphite. This battery can be charged in two ways. One, by attaching the battery to a electric power grid using a cable and two, by converting the energy used by the car brakes into charge. This decrease pollution by 15%.



Taxi's of the air - Uber Elevate

By Mohammad Hammad (IV mech B)

Flying taxis are just one of the many things Uber is working on in its quest to become the ultimate transportation company, or as CEO Dara Khosrowshahi recently put it, the "one-stop shop for the movement of people and powering local commerce around the world." It's one of the more seemingly far-fetched parts of that plan, but Uber has spent the last few years building up momentum to take a real shot at the idea. Beyond getting companies like Boeing on board to build and test real aircraft, Uber has also shown off a number of "skyport" concepts and poached some serious talent.

Uber wants to perform its own test flights in 2020, and it plans to launch some version of an air taxi service in 2023, starting in Dallas, Texas, and Los Angeles, California. The company also recently announced that it will offer helicopter rides in New York from lower Manhattan to John F. Kennedy International Airport.

STUDENT'S CORNER



Leo Saravana (III Mech B)



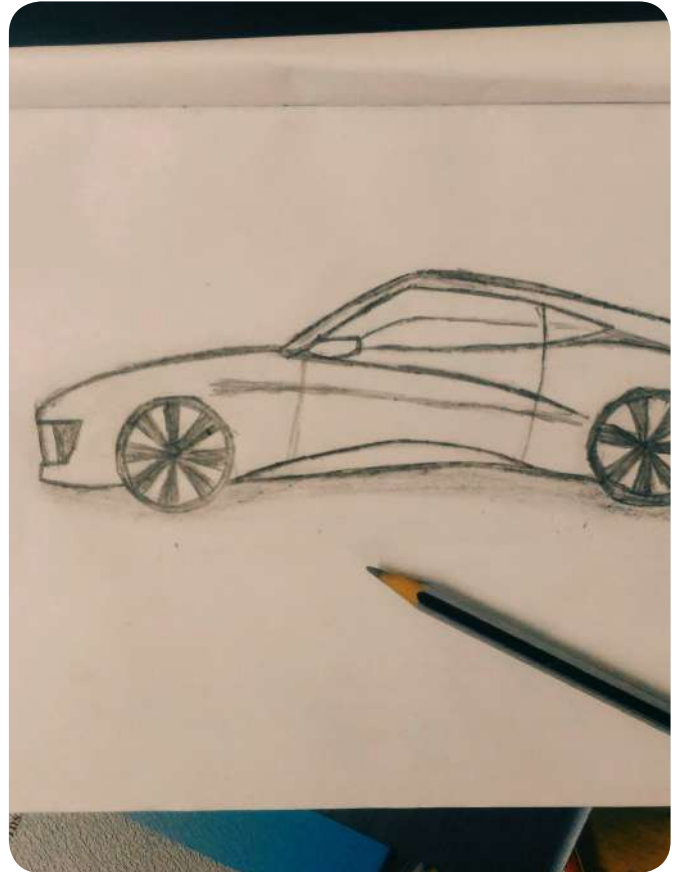
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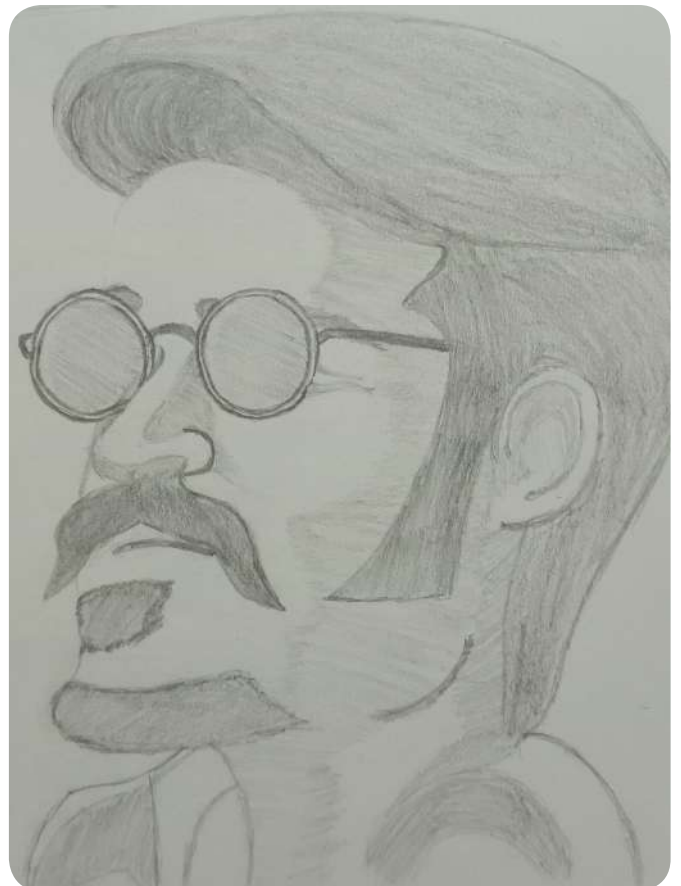
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WITH A LIGHT HEART



	2		6		8			
5	8				9	7		
				4				
3	7					5		
6								4
		8					1	3
				2				
		9	8				3	6
			3		6		9	

Answer

1	2	3	6	7	8	9	4	5
5	8	4	2	3	9	7	6	1
9	6	7	1	4	5	3	2	8
3	7	2	4	6	1	5	8	9
6	9	1	5	8	3	2	7	4
4	5	8	7	9	2	6	1	3
8	3	6	9	2	4	1	5	7
2	1	9	8	5	7	4	3	6
7	4	5	3	1	6	8	9	2

VISION

To develop competent and socially responsible mechanical engineers by providing quality education and research facilities.

MISSION

1. To collaborate with world class technical institutions both national, international and R&D organizations to impart practical training, teaching, research and entrepreneurship in order to prepare globally competitive mechanical engineers.
2. To provide state of the art infrastructure and research facilities and adopting modern teaching methodologies and training to achieve academic excellence.
3. To form socially responsible mechanical engineers by inculcating ethics through value based education.

PROGRAM EDUCATIONAL OBJECTIVES

Bachelor of Mechanical Engineering curriculum is designed to impart knowledge, skill and aptitude to the graduates to

PEO1: Have a successful career in Mechanical Engineering and allied industries.

PEO2: Have expertise in the areas of Design, Thermal, Materials and Manufacturing.

PEO3: Practice their profession with good communication skills, leadership, ethics and social responsibility.