

VIVA INSTITUTE OF TECHNOLOGY

VIRAR



# BOOTSTRAP

THE NEWSLETTER OF THE DEPARTMENT  
OF COMPUTER ENGINEERING

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### Vision

To develop competent citizens who will be valuable contributors in the field of technology and science.

### Mission

1. To create an environment which will stimulate research, creativity and innovation.
2. To provide students with comprehensive knowledge of the latest developments in Computer Engineering.

### Program Educational Objectives

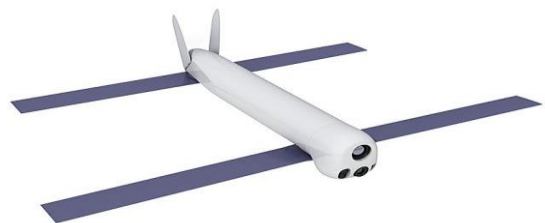
1. To equip students with solid foundation for solving hardware and software problems as per the needs of the corporate sector.
2. To develop the ability among the students to understand and interpret technical issues which is important for creating dynamic software.
3. To create an environment for inculcating leadership quality by nurturing raw talent.
4. To empower students and faculties for research and innovations.
5. To inculcate ethical, behavioural, organisational and social values.

## **\*\*THE SWITCHBLADE DRONE\*\***

The Switchblade is an unmanned aerial vehicle developed by AeroVironment. It is designed as a "kamikaze," being able to crash into its target with an explosive warhead to destroy its platforms.

### DESIGN:

The Switchblade is designed as an expendable UAV to increase precision firepower for platoon-sized infantry units. It is 2 feet (610 mm) long and weighs 6 lb (2.7 kg) including the carrying case and launcher, making it small and light enough for one soldier to carry. The Switchblade is folded up inside a tube with wings unfolding once it gets airborne. It can be controlled up to 10 km (6.2 mi) but its small size limits its endurance to 10 minutes. The Switchblade uses the same Ground Control Station (GCS) as other AeroVironment UAVs including the Wasp, RQ-11 Raven, and RQ-20 Puma. This creates commonality and the potential for teaming of longer-endurance small UAVs to recon for targets, then having the Switchblade attack once they are identified with the same controller.



## **\*\*WINDOWS 8\*\***

Windows 8 is a personal computer operating system developed by Microsoft as part of Windows NT family of operating systems. Development of Windows 8 started before the release of its predecessor, Windows 7, in 2009. It was announced at CES 2011, and followed by the release of three pre-release versions from September 2011 to May 2012. The operating system was released to manufacturing on August 1, 2012, and was released for general availability on October 26, 2012.

Windows 8 introduced major changes to the operating system's platform and user interface to improve its user experience on tablets, where Windows was now competing with mobile operating systems, including Android and iOS

Windows 8 was released to a mixed reception. Although reaction towards its performance improvements, security enhancements, and improved support for touchscreen devices was positive, the new user interface of the operating system was widely criticized for being potentially confusing and difficult to learn (especially when used with a keyboard and mouse instead of a touchscreen). Despite these shortcomings, 60 million Windows 8 licenses have been sold through January

2013, a number which included both upgrades and sales to OEMs for new PCs.

Requirement	Minimum
<b>Processor</b>	1 GHz clock rate IA-32 or x64 architecture Support for PAE, NX and SSE2 <sup>[118][119]</sup>
<b>Memory (RAM)</b>	<b>IA-32 edition: 1 GB</b> <b>x64 edition: 2 GB</b>
<b>Graphics Card</b>	DirectX 9 graphics device WDDM 1.0 or higher driver
<b>Display screen</b>	N/A
<b>Input device</b>	Keyboard and mouse
<b>Hard disk space</b>	<b>IA-32 edition: 16 GB</b> <b>x64 edition: 20 GB</b>



## **\*\*THE CURIOSITY ROVER\*\***

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**Curiosity** is a car-sized robotic rover exploring Gale Crater on Mars as part of NASA's Mars Science Laboratory mission (MSL).

Curiosity was launched from Cape Canaveral on November 26, 2011, at 10:02 EST aboard the MSL spacecraft and landed on Aeolis Palus in Gale Crater on Mars on August 6, 2012, 05:17 UTC. The Bradbury Landing site was less than 2.4 km (1.5 mi) from the center of the rover's touchdown target after a 563,000,000 km (350,000,000 mi) journey.

The rover's goals include: investigation of the Martian climate and geology; assessment of whether the selected field site

inside Gale Crater has ever offered environmental conditions favorable for microbial life, including investigation of the role of water; and planetary habitability studies in preparation for future human exploration.

Curiosity's design will serve as the basis for a planned Mars 2020 rover mission. In December 2012, Curiosity's two-year mission was extended indefinitely.

### **Instruments Used:**

- Mast Camera (MastCam)
- Chemistry and Camera complex (ChemCam)
- Rover Environmental Monitoring Station (REMS)
- Hazard avoidance cameras (hazcams)
- Mars Hand Lens Imager (MAHLI)
- Alpha Particle X-ray Spectrometer (APXS)
- Dust Removal Tool (DRT)
- Radiation assessment detector (RAD)
- Mars Descent Imager (MARDI)

## **\*\*ELECTRONIC COTTON\*\***

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Researchers in the US, Italy and France have invented transistors made from cotton fibers, producing “electronic cotton ! They’re hoping that their invention will help us understand how we move and interact with our environment. For example, the electric cotton could detect how fast we’re walking across carpet or how we’re affected by our environment (i.e. t-shirts that measure pollutants in the atmosphere). Their main goal is to create “a seamless interface between electronics and textiles.”

The cellulose that makes up cotton already provides natural insulation, which makes the fiber conductive, making it the perfect fabric to create an electrical stream through. The researches have already been doing tests where they treat the cotton with a thin layer of conductive polymer (PEDOT). By adding the polymer the cotton becomes a thousand times more conductive than plain cotton, and keeps the mechanical properties untouched.

One of the first tests the researchers did was tie a knotted end of treated cotton to a

battery and the other to a LED, and poof! they created an electrical current. Unfortunately the electrons in the cotton fibers aren’t as strong as silicon circuits so we won’t be seeing MP3 clothing anytime soon. Nor will you ever have to worry about feeling the electric charge!

