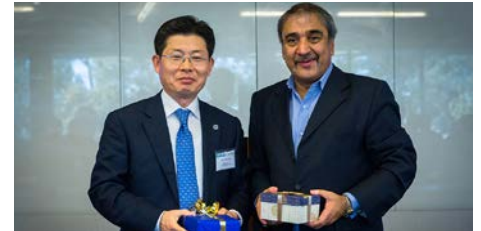


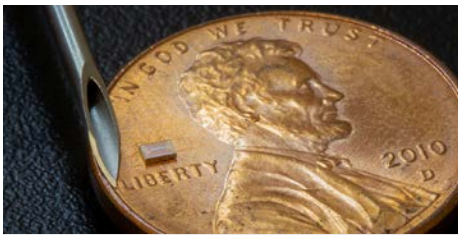
## San Diego, Korea team up to tackle transportation

UC San Diego launched an international research collaboration to develop smart and clean transportation systems and infrastructure, with an added goal of commercializing the results. In partnership with the City of San Diego, the City of Ulsan in Korea and the Ulsan National Institute of Science and Technology (UNIST), along with numerous industry partners, the UC San Diego Smart Transportation Innovation Program will develop technological solutions to tomorrow's transportation challenges. "We aim to make San Diego and Ulsan leaders in smart and green transportation solutions," said electrical engineering professor Sujit Dey, director of the Smart Transportation Innovation Program.

Learn more: [bit.ly/SmartTransportProgram](http://bit.ly/SmartTransportProgram)



## Tiny injectable sensor could provide long-term alcohol monitoring



Electrical engineers at UC San Diego have developed a miniature, ultra-low power injectable biosensor that could be used for continuous, long-term alcohol monitoring. The chip is small enough to be implanted in the body just beneath the surface of the skin and is powered wirelessly by a wearable device, such as a smartwatch or patch. "The ultimate goal of this work is to develop a routine, unobtrusive alcohol and drug monitoring device for patients in substance abuse treatment programs," said Drew Hall, an electrical engineering professor at the Jacobs School of Engineering who led the project. Hall is working with CARI Therapeutics, a startup based in the Qualcomm Institute Innovation Space at UC San Diego, and an addiction psychiatrist at UC San Diego to further develop the project.

Learn more: [bit.ly/InjectableAlcoholChip](http://bit.ly/InjectableAlcoholChip)

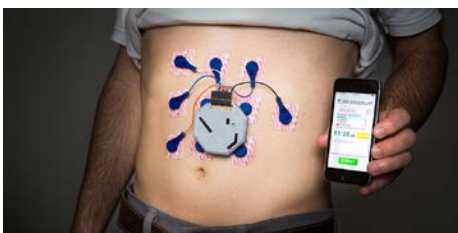
## Gecko-inspired adhesives help soft robotic fingers get a better grip

The Bioinspired Robotics and Design Lab at the Jacobs School has developed a robotic gripper that combines the adhesive properties of gecko toes and the adaptability of air-powered soft robots to grasp a much wider variety of objects than the state of the art. The gripper can lift up to 45 lbs. and could be used to grasp objects in a wide range of settings, from factory floors to the International Space Station. Next steps include developing algorithms for grasping that take advantage of the adhesives, and investigating the use of this gripper for zero-gravity and space operations.

Learn more: [bit.ly/GeckoGripper](http://bit.ly/GeckoGripper)



## Wearable system monitors the stomach's activity throughout the day



A team of engineers and physicians has developed a wearable, non-invasive system to monitor electrical activity in the stomach over 24 hours—essentially an electrocardiogram (EKG) but for the gastro-intestinal (GI) tract. Applications include monitoring GI activity for patients outside of a clinical setting, which cuts down costs. "This work opens the door to accurately monitoring the dynamic activity of the GI system," said bioengineering professor Todd Coleman.

Learn more: [bit.ly/StomachSensor](http://bit.ly/StomachSensor)

## Center for Energy Research extends its expertise

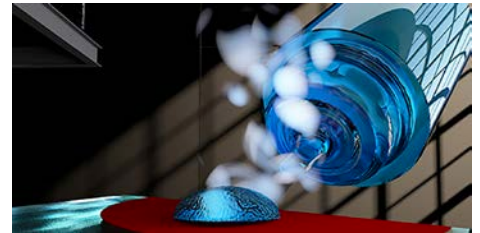


UC San Diego's Center for Energy Research, which helped to develop the innovative power grid that allows the campus to generate most of its own energy while pumping less carbon into the atmosphere, is extending its expertise to the rest of the San Diego region. The Center, for example, is helping the Port of San Diego and the Miramar Marine Corps Air Station become more energy self-sufficient and cut carbon emissions. Faculty from mechanical and aerospace engineering, nanoengineering, electrical and computer engineering, and structural engineering are all key members of the Center.

Learn more: [bit.ly/PowerPlayerUCSD](http://bit.ly/PowerPlayerUCSD)

## Keck funds work to make injectable treatments inhalable

The Keck Foundation recently awarded professor James Friend from mechanical and aerospace engineering a prestigious \$900,000 grant. The funding will support his team's goal to make injectable medicines inhalable, which would unlock a whole class of new treatments. Imagine, for example, if all childhood vaccines could get delivered with an inhaler rather than shots; or wiping out tuberculosis bacteria in a patient's lungs with an inhaler; or disinfecting a hospital room thoroughly with a diffuser. The team's breakthroughs are based on the ability to atomize liquids that had previously been considered too viscous for the process.



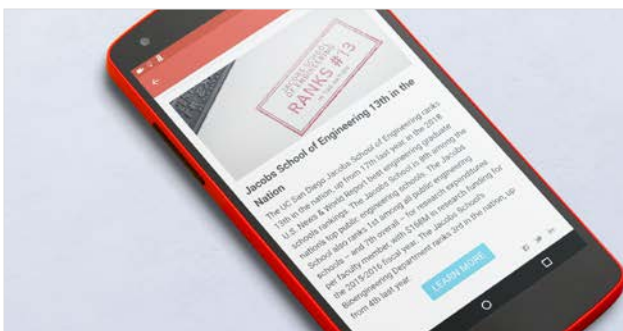
Learn more: [bit.ly/InhalableMeds](http://bit.ly/InhalableMeds)

## Flexible ultrasound patch makes it easier to inspect damage in odd-shaped structures



Researchers have developed a stretchable, flexible patch that could make it easier to perform ultrasound imaging on odd-shaped structures, such as engine parts, turbines, reactor pipe elbows and railroad tracks. The new device overcomes a limitation of today's ultrasound devices, which are difficult to use on objects that don't have perfectly flat surfaces. Conventional ultrasound probes have flat and rigid bases, which can't maintain good contact when scanning across curved, wavy, angled and other irregular surfaces. This new soft ultrasound probe can work on odd-shaped surfaces without water, gel or oil.

Learn more: [bit.ly/FlexibleUltrasonicProbe](http://bit.ly/FlexibleUltrasonicProbe)



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