



Tech Insider Stories 7 April 2023

Story 1: Surprising alternative to crude oil used to make a new recyclable plastic

Source: ScienceAlert.com

Story by Clare Watson

Link: <https://tinyurl.com/4tdabteh>



Cutlery made from PECA. (Allison Christy/Boise State University)

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- It's estimated that less than 10 percent of all the plastic ever made has been recycled.
- To help increase recycling, two scientists from Boise State University recently developed a new kind of recyclable plastic that, unlike existing plastics, isn't made from crude oil and its derivatives.

- The new type of plastic is based on a surprising ingredient used to make something you probably have at home, it's the molecule used to make Super Glue!
- The researchers suggest their new, recyclable plastic could replace polystyrene plastics that are not accepted by most recycling programs.
- These include styrofoam and molded polystyrene, which is used to make disposable plates, cups, and cutlery.
- And the Boise State University team believes with further research their new formula could be used to make other forms of plastic in the future.

Story 2: Amazing proof-of-concept demonstration shows a soldier controlling a robot surveillance dog with his thoughts!

Source: UK's Daily Mail

Story by Stacy Liberatore

Link: <https://www.dailymail.co.uk/sciencetech/article-11896135/Killer-robot-dogs-controlled-soldiers-MINDS-trialed-Australian-army.html>



See video here: <https://tinyurl.com/4h4sey32>

- Imagine a patrol of soldiers moving down a roadway, or searching a building, aided by a surveillance robot dog. Now picture one of the soldiers commanding and guiding the robot dog with his or her thoughts!
- It's not a scene from a Sci-Fi movie. Instead, it's what happened recently in a proof-of-concept demonstration.

- The Australian Army has perfected commanding the movements of a sophisticated quadruped robot using the brain waves of a soldier trained to be its operator.
- The remarkable mind-controlling capabilities are achieved by using eight brain wave sensors in the operator's helmet that work in tandem with a Microsoft HoloLens – which is an augmented and mixed reality headset.
- The mind control system features an artificial intelligence-decoder that translates a soldier's brain wave signals into instructions that are wirelessly sent to the dog-like robot.
- A demonstration video from the Australian Army shows military personnel conducting a simulated patrol using the robot dog, which was instructed to inspect a facility guided only by what it detected from the operator's brain waves.
- And, get this, the robot dog responded to commands with 94 percent accuracy!

Story 3: Scientists say habitats on Mars could be made from potato-based building materials

Source: Popular Science

Story by Andrew Paul

Link: <https://www.popsci.com/technology/mars-starcrete-potato/>



- When humans arrive on Mars building shelters will obviously be a top priority for long-term occupation.
- But transporting traditional building materials from the Earth to Mars would be costly and impractical.

- To help provide a “doable” building materials solution, researchers from the University of Manchester in England have developed a new super strong building material primarily composed of just potato starch, a bit of salt, and simulated Martian dirt.
- The researchers call it StarCrete.
- The University of Manchester team contends that potato starches are likely to be transported to Mars as a food source for the astronauts.
- With this in mind, and according to the team’s estimates, a 55-pound sack of dehydrated potatoes includes enough starch for half a metric ton of their StarCrete—enough to make around 213 bricks for structures.
- In experiments combining the potato starch with salt and magnesium chloride taken from simulated Martian soil, they discovered that their StarCrete formula offered twice the compressive strength of traditional concrete.

Story 4: New app uses smartphone selfies to screen for pancreatic cancer

Source: University of Washington Press Release

Link: <https://www.washington.edu/news/2017/08/28/new-app-uses-smartphone-selfies-to-screen-for-pancreatic-cancer/>



BiliScreen is a new smartphone app that is designed to screen for pancreatic cancer by having users snap a selfie. It's shown here with a 3-D printed box that helps control lighting conditions to detect signs of jaundice in a person's eye. Dennis Wise/University of Washington

See video here: <https://www.youtube.com/watch?v=xAI-95DSZi8>

- Deadly pancreatic cancer is hard to predict — but an early symptom is jaundice, a yellow discoloration of the skin and eyes caused by a buildup of bilirubin in the blood.
 - Bilirubin is an orange-yellow pigment formed in the liver.
- University of Washington researchers recently announced a smartphone app to detect bilirubin called BiliScreen.
- The BiliScreen app uses:
 - a smartphone's camera,
 - computer vision algorithms
 - and artificial intelligence-based machine learning tools to analyze a close-up selfie to detect increased bilirubin levels in the white part of an eye.
- The goal of the new BiliScreen app is to detect signs of jaundice before they're even visible to the naked eye — giving doctors an entirely new proactive screening tool for individuals deemed to be at risk for pancreatic cancer.
- In a clinical study the researchers asked 70 people to use their smartphones, the BiliScreen app, and a 3D printed box to hold the phone in the correct position to take a close-up selfie of each eye.
- And the results were impressive, with the BiliScreen app correctly identifying cases of concern with 89.7 percent accuracy!