



NavTantra Newsletter



Innovation carves new
paths in
the forest of the
unknown.

December 2024

“Think Big, Build Bold.”



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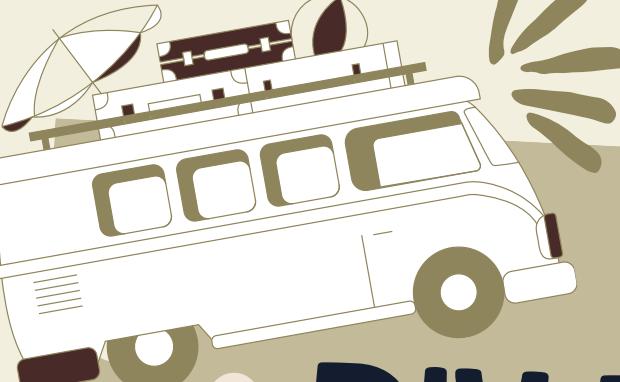
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BUSTING SOME TECH MYTHS



DIY Bristlebot (Mini Robot)





December
Edition

DIY Bristlebot (Mini Robot)

A BRISTLEBOT IS A SMALL ROBOT THAT VIBRATES AND MOVES.



MATERIALS REQUIRED

- A TOOTHBRUSH (FLAT-BOTTOM BRISTLES WORK BEST).
- A SMALL MOTOR (LIKE A MOTOR FROM AN OLD TOY OR GADGET).
- A SMALL BATTERY (BUTTON CELL OR AA BATTERY).
- TAPE OR GLUE.
- OPTIONAL: DECORATIVE ITEMS LIKE GOOGLY EYES FOR FUN.

STEPS TO MAKE IT:

- PREPARE THE TOOTHBRUSH: CUT THE HANDLE OFF THE TOOTHBRUSH, LEAVING ONLY THE BRISTLE PART.
- ATTACH THE MOTOR: USE TAPE OR GLUE TO ATTACH THE SMALL MOTOR ON TOP OF THE TOOTHBRUSH BASE.
- 3. CONNECT THE BATTERY: CONNECT THE MOTOR WIRES TO THE BATTERY TERMINALS (IF NO WIRES, YOU CAN DIRECTLY TAPE THE MOTOR TERMINALS TO THE BATTERY).
- ADD GOOGLY EYES OR OTHER DECORATIONS TO MAKE IT LOOK CUTE AND FUN.

HOW IT WORKS?

The motor creates vibrations, which make the toothbrush bristles move, causing the bristlebot to "walk" around.

3





BIO MIMICRY

Biomimicry: Innovation Inspired by Nature

Biomimicry, meaning "imitation of the living," takes inspiration from nature's solutions shaped by millions of years of evolution. It applies these principles to human engineering, promoting designs that are efficient, resilient, and sustainable.

Definition of Biomimicry

Biomimicry is learning from and then emulating nature's forms, processes, and ecosystems to create more sustainable designs.



Inspired Future

Biomimicry in Product Design

Applications Across Sectors

Biomimicry influences various fields, including medicine, architecture, industry, and agriculture. Its philosophy emphasizes economy, efficiency, and waste-free systems, aligning with sustainable development principles.



Gecko feet



Climbing feet

Examples of Biomimicry in Action:-

- Gecko Feet: Inspired climbing pads supporting human weight.
- Bullet Train: Aerodynamics modeled after a bird's beak.
- Flying Machine: Wright brothers' invention inspired by pigeons.
- Termite Mounds: Passive cooling architecture.
- Velcro: Inspired by plant hooks clinging to animal fur.
- Shark Skin: Enhanced swimsuits and aircraft varnish.



Flying Machine



Bullet Trains

STORY UNFOLDING



STORY UPFOLDING



SOFT ROBOTICS

Soft materials are making robots more adaptable and delicate. In July 2024, Harvard's Wyss Institute introduced a "tentacle-like" robotic arm that gently handles fragile items, making it ideal for surgeries or uneven terrains.

SELF-HEALING ROBOTS

Inspired by biology, researchers are crafting robots that fix themselves! At Vrije Universiteit Brussels, a team in February 2024 demonstrated robots made from materials that recover from damage, extending their lifespan.



STORY UPFOLDING



SWARM ROBOTICS

Think teamwork but for robots. Inspired by ants and bees, small robots can now work together in groups. In June 2024, ETH Zurich showcase drones autonomously building structures using 3D printing. Swarm robots are already helping in search-and-rescue missions and environmental cleanups.

BIOHYBRID ROBOTICS

Blurring the line between biology and technology, researchers at the University of Illinois debuted robots powered by muscle cells in May 2024. These eco-friendly biohybrid robots could revolutionize sustainable design.



**FACT
OR
FAKE**

**FACT
OR
FAKE**

**FACT
OR
FAKE**



TECH MYTH

DEBUNKS



1. Do Smartphones Really Listen to You?

Ever feel like your phone is spying on you because ads magically match your conversations? Relax—it's not actually listening. Instead, apps track your searches, locations, and online activity. Using all this data, smart algorithms predict what you might want to see. Creepy? Yes. Microphones? No

2. Does Blue Light Ruin Your Eyes?

Blue light gets a bad rap, but it's not destroying your eyesight. Staring at screens for too long can cause discomfort and strain, but it's temporary. The real issue? Spending hours glued to your screen without breaks. Try the 20-20-20 rule: every 20 minutes, look at something 20 feet away for 20 seconds. Your eyes will thank you!



3. Charging Your Laptop All the Time Wrecks the Battery

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TECH MYTH

DEBUNKS



4. Is Public Wi-Fi Safe if You Use HTTPS?

HTTPS is great for secure browsing, but public Wi-Fi isn't always safe. Hackers can create fake networks or intercept your data, even if you're on an HTTPS site. If you have to use public Wi-Fi, play it safe with a VPN to protect your information.

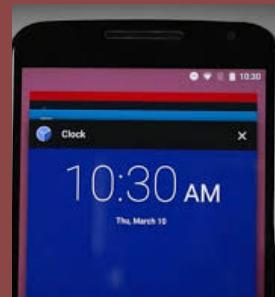
5. Charging Your Phone to 100% Helps Battery Life

Think charging your phone all the way to 100% is good for the battery? Actually, it's not! Lithium-ion batteries last longer if you keep the charge between 20% and 80%. And try not to leave it plugged in overnight—heat from constant charging wears out the battery faster.

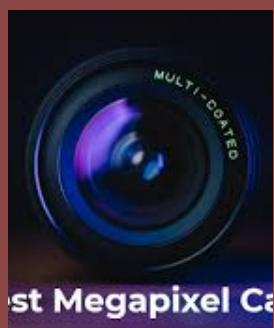


6. Does Closing Apps Save Battery?

Swiping away apps feels like you're saving battery life, but it doesn't work that way. Phones are designed to manage background apps efficiently. Forcing them to close and reopen actually uses more power. Leave them alone unless they're frozen or misbehaving



TECH MYTH DEBUNKS



7. More Megapixels = Better Photos?

Not true! A camera's megapixels don't guarantee better picture quality. What really matters is the sensor size, lens quality, and software. A 12 MP camera with a great sensor can easily outperform a 48 MP camera with a mediocre setup.

8. Is 5G Dangerous?

There's no reason to fear 5G. It uses non-ionizing radiation, which isn't strong enough to harm your DNA or cells. This tech has been rigorously tested and approved, so it's completely safe to use.



9. Refreshing Speeds Up Your Device

Refreshing your home screen feels like you're fixing a slow device, but it can actually slow things down. Refreshing clears temporary cache or forces your system to redraw everything, which uses more resources. Let your device handle updates automatically unless something is visibly stuck.



“Innovation is the whisper
of tomorrow heard in the
echoes of today.”

