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Technology News Researchers Build Mini Brains For Robots To Feel Pain And Self-Heal

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# Researchers Build Mini Brains For Robots To Feel Pain And Self-Heal

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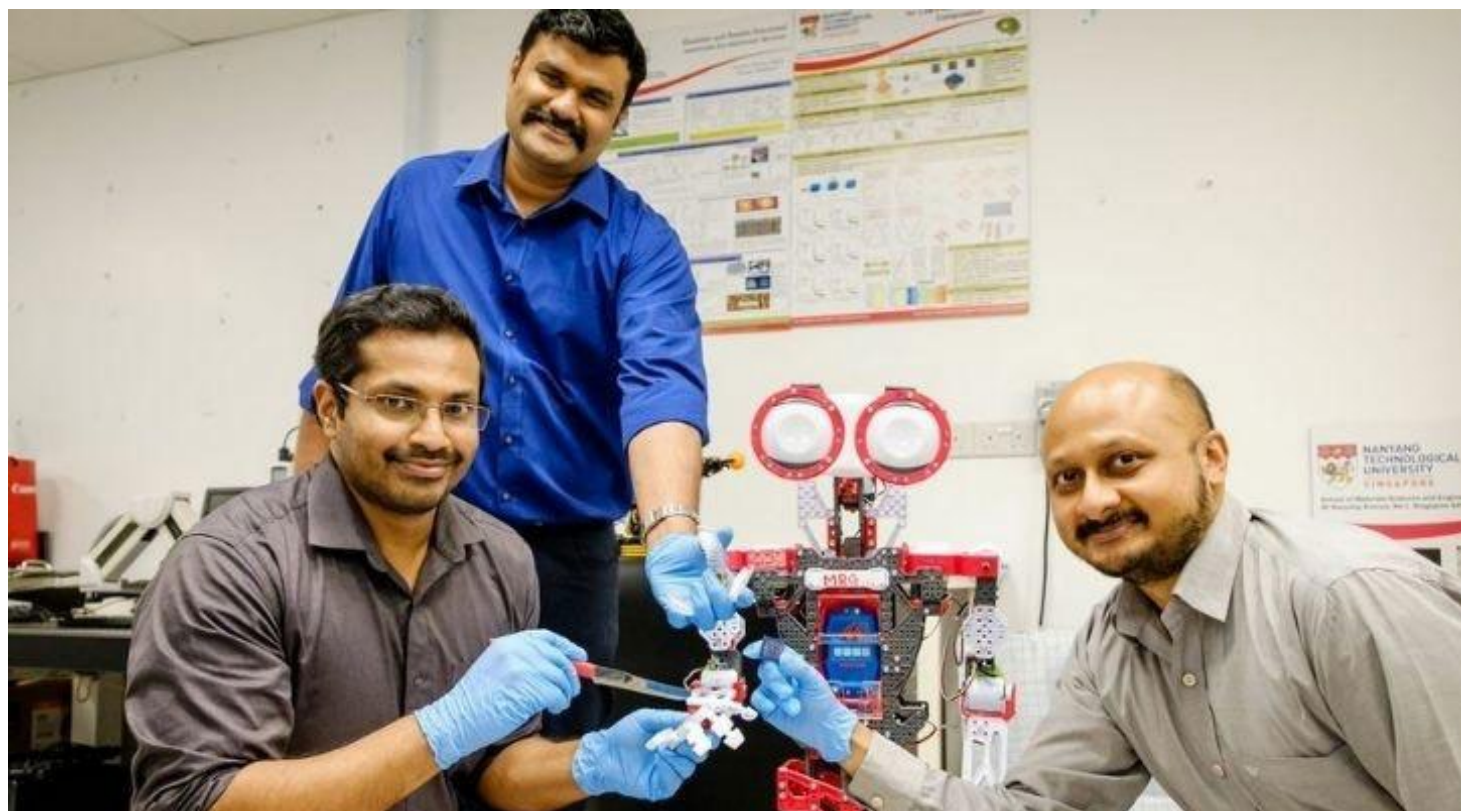
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## Highlights

Nanyang Technological University, Singapore have developed mini brains that would help robots recognise and feel pain, with the help of AI. To teach robots pain, they made memtransistors -- brain-like electronic devices that are capable of memory and information processing -- to act like artificial pain receptors and synapses. Lab experiments revealed how the robot was able to learn to respond to injury in real-time. Moreover, in several instances, the robot responded to pressure even after damage. They combined the system with a self-healing ion gel material that can heal the robots and get the function back to normal without human intervention, how cool is that?

**Robots are slowly, but steadily entering our lives**, bringing us closer to a reality as we've seen in sci-fi movies. Whether it's home automation or manufacturing **robots** in car factories or even the

Roombas that clean the floor in our homes.



NTU

And while there are several things that keep humans a step ahead than **robots**, the fear of getting injured is one of them. Today, since we can sense fear and understand what it feels like when a part of our body is hurt, we work in a way to avoid getting hurt or injured. **Robots** don't really feel pain, so they end up doing their work willy nilly and end up getting severely damaged -- in some cases beyond repair. This obviously comes at a grave cost to the owner of the robot.

However, to circumvent this, researchers at Nanyang Technological University, Singapore have **developed mini brains that would help robots recognise and feel pain**, with the help of AI.

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Lab experiments revealed how the robot was able to learn to respond to injury in real-time. Moreover, in several instances, the robot responded to pressure even after damage. They combined the system with a self-healing ion gel material that can heal the robots and get the function back to normal without human intervention, how cool is that?

First author of the study, Rohit Abraham John, who is also a Research Fellow at the School of Materials Science & Engineering at NTU, said, "The self-healing properties of these novel devices

help the robotic system to repeatedly stitch itself together when ‘injured’ with a cut or scratch, even at room temperature. This mimics how our biological system works, much like the way human skin heals on its own after a cut.”



NTU

“In our tests, our robot can ‘survive’ and respond to unintentional mechanical damage arising from minor injuries such as scratches and bumps, while continuing to work effectively. If such a system were used with robots in real-world settings, it could contribute to savings in maintenance.”

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