

- SHARE SELECTION



MailOnline

Robocop-a-feel! Droid lets you feel virtual BREASTS - and could revolutionise cancer detection

- **Researchers from Gifu University, Japan, created the haptic device**
- **It attaches to a person's hand and can simulate the softness of different materials by producing realistic tactile sensations on individual fingertips**
- **Mechanism uses a thin, flexible sheets of a material known as hyper-gel, which has some properties similar to human flesh, to simulate softness**
- **Device could be used as a tool to help trainee doctors become skilled in examinations that involve feeling parts of the body with the hands**

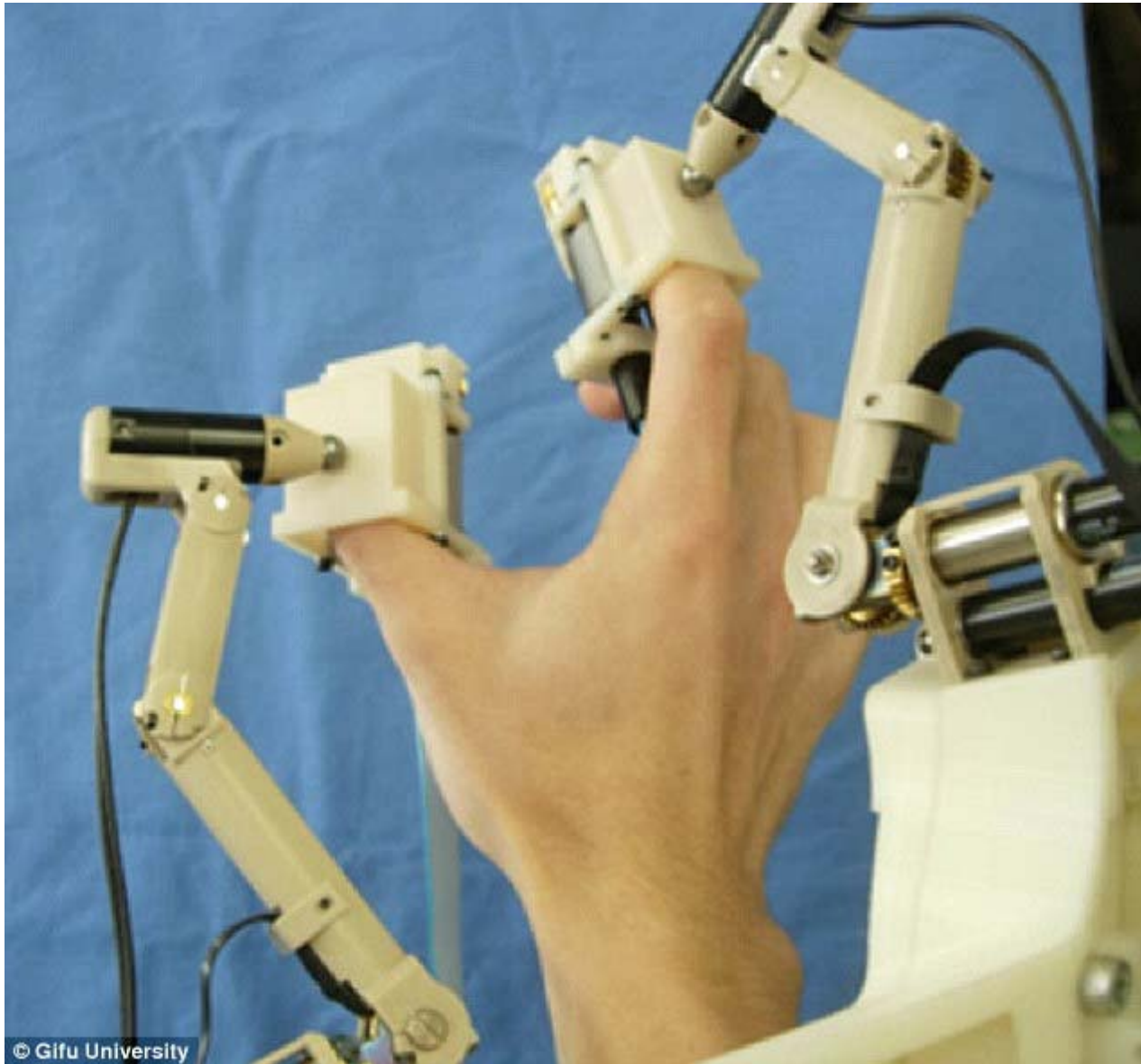
By [Sarah Griffiths](#)

Published: 15:41 GMT, 4 June 2014 | Updated: 09:41 GMT, 5 June 2014

A robot that lets you feel breasts virtually, may sound like a prop from a bizarre sci-fi film.

But not only does it exist – the device could have useful medical applications and potentially improve breast cancer detection.

It accurately simulates the sensation of coming into contact with a real breast tissue which could serve as a training tool for medical students learning to recognise potentially cancerous lumps.



• SHARE PICTURE

-
-
-
-
-

+2

Robo-cop-a-feel: The haptic robot (pictured) accurately simulates the sensation of coming into contact with a real breast, which could not only prove useful to lonely or inexperienced men, but could serve as a training tool for medical students

HOW DOES THE DEVICE WORK?

The haptic robot simulates the sensation of coming into contact with a real breast.

It consists of a five-fingered haptic hand connected to a robotic arm with a mechanism that comes into contact with the fingertips.

This mechanism uses a thin, flexible sheet of a material known as hyper-gel, which has some properties similar to human flesh.

To simulate softness, the sheets of gel are stretched by two tiny rollers with a gap between them, so that they are suspended.

Your finger rests on a strip and by using a motor and a set of gears to move the rollers, the tension on the strip of gel can be increased or decreased.

Increasing the tension and tightening the sheet of gel makes it feel harder under your finger, while decreasing the tension makes it feel softer.

Japanese researchers developed the haptic device that attaches to a person's hand and can simulate the softness of different materials by producing realistic tactile sensations on individual fingertips, [IEEE Spectrum](#) reported.

It could be used as a training tool to help trainee doctors become skilled in examinations that involve feeling parts of the body with the hands – particularly in learning how to palpate breasts when looking for lumps.

The scientists from Gifu University, Japan, who came up with the invention, called it a 'multi-fingered haptic interface robot,' and debuted it at the IEEE International Conference on Robotics and Automation (ICRA) in Hong Kong.



© Gifu University

Realistic: Japanese researchers developed the haptic device (pictured right) which that attaches to a person's hand and can simulate the softness of different materials by producing realistic tactile sensations on individual fingertips. It is said to be more realistic than touching a model of a silicon breast (pictured left)

Haptic technology has been improving over the years, but simulating touch is still difficult. Conjuring up the softness of objects has proved a particularly large challenge because our fingertips are very sensitive and produce nuanced sensations that are hard to replicate.

Conventional haptic devices convey softness by constraining the motion of fingers and hands. Typically, you operate them while looking at virtual objects on a screen or through virtual reality goggles so that if you poke a soft object, the device will let your fingers move a little into it before it starts pulling them back to emulate the elasticity of the material.



• SHARE PICTURE

-
-
-
-
-

+2

The device (pictured) consists of a five-fingered haptic hand with flexible pieces of gel that comes into contact with the fingertips (pictured)

The researchers believe there is a difference between experiencing a force with your finger and experiencing the sensation of a soft touch.

They said that a genuine sensation of touch is primarily due to signals that are generated when the skin on our fingertips deforms and this is the phenomenon they wanted to emulate.

Their device consists of a five-fingered haptic hand connected to a robotic arm as well. It includes a mechanism that comes into contact with the fingertips. This

mechanism uses thin, flexible sheets of a material known as hyper-gel, which has some properties similar to human flesh.

To simulate softness, the sheets of gel are stretched by two tiny rollers with a gap between them, so that they are suspended.

Your finger rests on a strip and by using a motor and a set of gears to move the rollers, the tension on the strip of gel can be increased or decreased.

Increasing the tension and tightening a sheet of gel makes it feel harder under your finger, while decreasing the tension makes it feel softer.

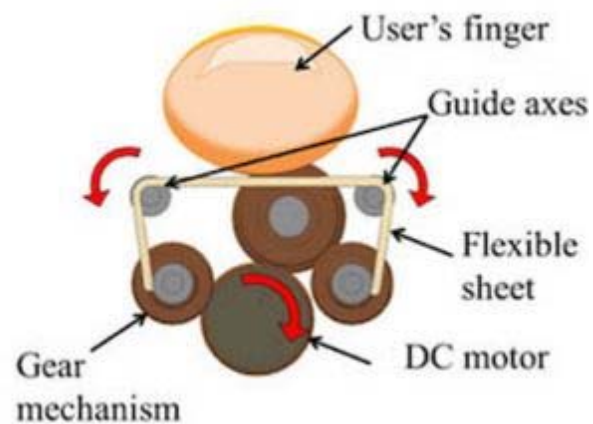
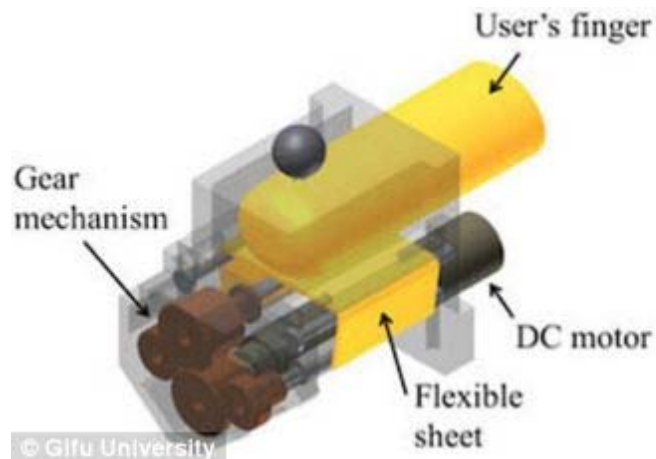
In experiments, users of the new device said that it simulates the feeling of a real breast and is better than other commercially available alternatives.

Other haptic devices designed to simulate softness have been invented, but they are unsuitable for medical training because they only allow users to 'touch' objects of certain shapes and sizes.

Artificial body parts such as breasts are also of limited use to medical students learning to locate lumps, as different models are needed to help them identify differing sizes of lumps in various locations.

The inventors of the haptic robot said its strength is its versatility. In a simulation, you can have a virtual human body that you can constantly change to create new challenges for the students.

The researchers hope that their device will prove accurate enough that it can one day be used to replace humans and animals for significant portions of medical training, mitigating issues of availability and ethics.



To simulate softness, the sheet of gel is stretched by two tiny rollers with a gap between them, so that a strip of gel is suspended (pictured). Your finger rests on this strip and by using a motor and a set of gears to move the rollers, the tension on the strip of gel can be increased or decreased to change how soft an object feels



Comments (17)

Share what you think

- [Newest](#)
- [Oldest](#)
- [Best rated](#)
- [Worst rated](#)

[View all](#)

[Hzurdaddy](#), USA, 6 days ago

Just be sure to leave one hand free, so as to not interfere with other virtual realities.

0
7



[Click to rate](#)

[I See Everything](#), On The Edge Of No Tomorrow, United Kingdom, 1 week ago

So many potentials. An app for this very soon!

0
2

[Tiddles](#), Earth, 1 week ago

Hope it comes in pairs...

0
5

[Click to rate](#)

[Completely Average](#), Somewhere, United States, 1 week ago

Am I the only one that read "Robot allows you to feel virtual breasts" and immediately thought "Must be Japanese".

4
18

[Click to rate](#)

[Click to rate](#)

[Orion1084](#), Indiana, United States, 1 week ago

Oh, please. We all know why they REALLY invented this, lol.

0
20

Click to rate



[Account Suspended](#), In Limbo, United States, 1 week ago

Trade in Wife Ver 1.0...

0
6

Click to rate

[JTuck77](#), Armpit Of California, United States, 1 week ago

Finally nerds everywhere can get to second base!

0
17

Click to rate

[FatWord](#), Greatest Britain, 1 week ago

Takes virtual sex to another level!

0
15

Click to rate



[Account Suspended](#), In Limbo, United States, 1 week ago

Does it have a Kate Upton app? Just asking...

0
8

Click to rate



[sniffy45](#), suggardaddy, United States, 1 week ago

Im sure it is/will be used for training purposes cough, cough. When is the other part being developed, thats what everyone here is really thinking.

0
4

Click to rate

The views expressed in the contents above are those of our users and do not necessarily reflect the views of MailOnline.



Who is this week's top commenter? [Find out now](#)

- SHARE PICTURE

-
-
-
-
-

Copy link to paste in your message

Published by Associated Newspapers Ltd

Part of the Daily Mail, The Mail on Sunday & Metro Media Group

[© Associated Newspapers Ltd](#)