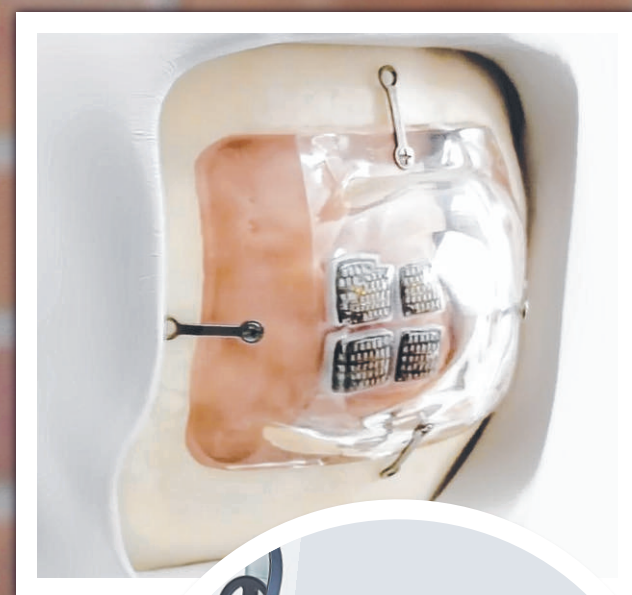


Leighton Boyd 67, hopes he'll be able to see grandson Franklin, 3, and all his other grandchildren if the bionic eye brain implant works. Picture: DAVID CAIRD



# I SPY, WITH MY BIONIC EYE

## HOW IT WORKS

» Vision loss occurs when damage to optic nerves stops signals from being transmitted from the retina to the brain

» Monash University Gennaris bionic vision system has been proven in sheep with vision loss to bypass this damage and restore low-grade vision

» This is done by connecting tiny implants — tiles 9mm by 9mm — to the surface of the brain

» Using a headset, camera and goggles, the world is captured via video and sent to a vision processor (about the size of a smartphone)

» This detects the "most useful" information — for example, a car or stop sign — and is transmitted back to the brain via the implant

» Information is then converted into a pattern through a series of electric pulses, which stimulate the brain and create a version of the scene

## New device offers glimmer of hope to the blind

ALANAH FROST

A WORLD-FIRST miracle device that lets blind people see is nearing human trials.

The device — an implant and camera headset — is a product of Monash University's Vision Group and has already been successfully tested in animals.

Researchers are now hopeful if human trials go well, it could be on the market in as little as five years.

Many people with vision loss have damage to the optic nerves, which stop important

signals being sent from the retina to the brain.

The Monash device has been designed to bypass this damage, creating a pathway for the person to see again.

Head of Monash's neuro-bionics laboratory Yan Tat Wong said it was like putting together "pixels on a TV".

"What we want to do is fill in what's lost (by blindness)," he said. "Seeing a loved one's face, the ease of picking something up, navigating the world and just making people's lives easier."

It works by connecting a

miniature electronic implant to the surface of the brain. The implant is connected to a set of vision goggles and a camera — essentially acting as a "bionic eye".

They transmit to a phone or pocket device and the vision is scanned for the most important details, which are then converted into a pattern via a series of electric pulses that stimulate the brain and allow the person to see a version of what is in front of them.

Dr Wong said while it was "low-resolution vision", it could allow people who were

blind to regain their independence. "I think the thing to remember is that people who suffer from blindness are still very able people," he said.

He said the device would help them to at least see the outlines of stop signs or cars on the road. "It allows them to navigate the world," he said.

Leighton Boyd, 67, was diagnosed with retinitis pigmentosa at age five and told he would eventually go blind.

Mr Boyd, who is also the chairman of Retina Australia, said technology like the Monash team's device — called

Gennaris — gave hope to people with little or no vision.

"If there's a technology that would help me, or our members, with that ability to get some mobility and identify things — friends, family, grandchildren — just seeing the faces of people, I would jump at that," he said.

Dr Wong and his team are now pushing for funding to begin human trials. "We've done the hard scientific work, the hard engineering work, now we want to provide the benefit to patients," he said.

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