'Friendly' robots could allow for more realistic human-android relationships

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3D robot

Two 'friendly' robots, including a 3D-printed humanistic android, are helping scientists to understand how more realistic long-term relationships might be developed between humans and androids.

ERWIN (Emotional Robot with Intelligent Network) is the brainchild of Dr John Murray, from the School of Computer Science, University of

Lincoln, UK. It is now being used as part of a PhD study to find out how some of the human-like thought biases in [robot](#) characteristics affect the human-robot [relationship](#).

It is hoped the research will not only help scientists to understand and develop better, more realistic relationships between humans and 'companion' robots, but that it could also help to inform how relationships are formed by children with autism, Asperger syndrome or attachment disorder.

PhD student Mriganka Biswas said: "Cognitive biases make humans what they are, fashioning characteristics and personality, complete with errors and imperfections. Therefore, introducing cognitive biases in a robot's characteristics makes the robot imperfect by nature, but also more human-like.

"Based on human interactions and relationships, we will introduce 'characteristics' and 'personalities' to the robot. If we can explain how human-to-human long-term relationships begin and develop, then it would be easier to plan the human-robot relationship."

When two people interact for the first time, if the two different personalities attract each other, a relationship forms. But, in the case of conventional human-robot interaction, after gathering information about the robot, the robot's lack of identifiable characteristics and personality prevents any relationship bond developing.
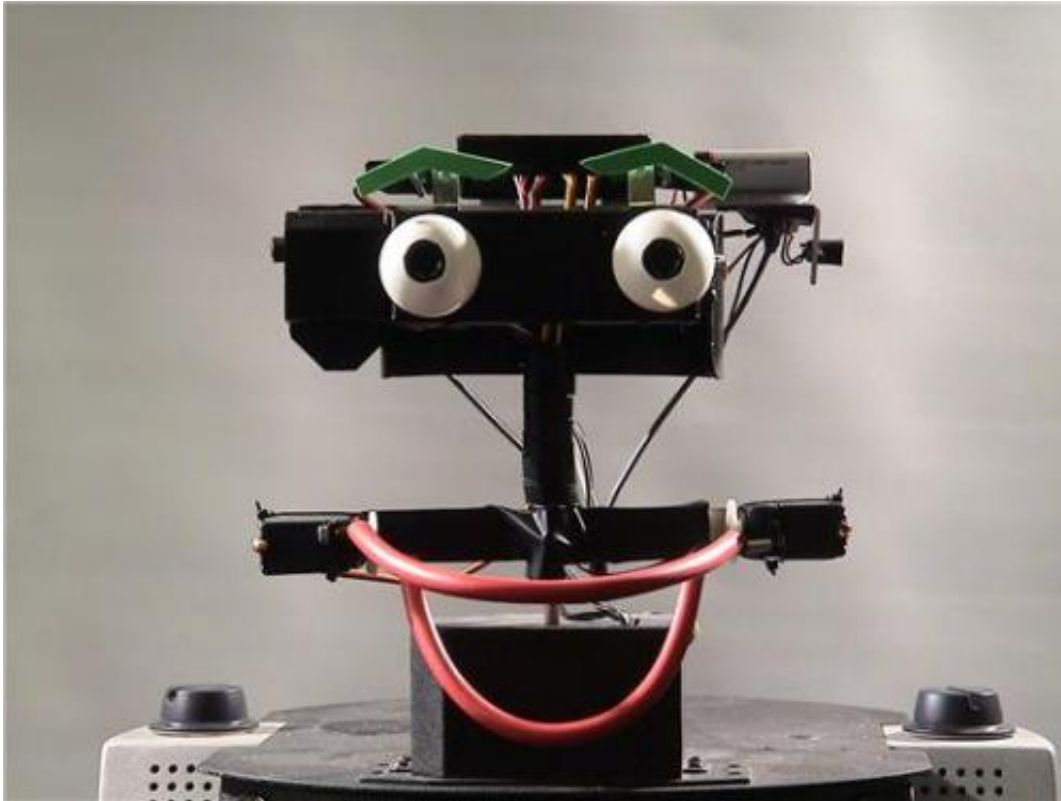
Erwin smiling

ERWIN has the ability to express five basic emotions while interacting with a human.

Mriganka said: "Robots are increasingly being used in different fields, such as rescuing people from debris, in medical surgeries, elderly support and as an aid for people who have autism.

"For the latter two especially, robots need to be friendly and relatively more sympathetic and emotive to its users. A companion robot needs to be friendly and have the ability to recognize users' emotions and needs, and to act accordingly. So, for each category the robot needs to form a 'long-term' relationship with its users, which is possible by continuous interactions and the robot having its own personality and characteristics."
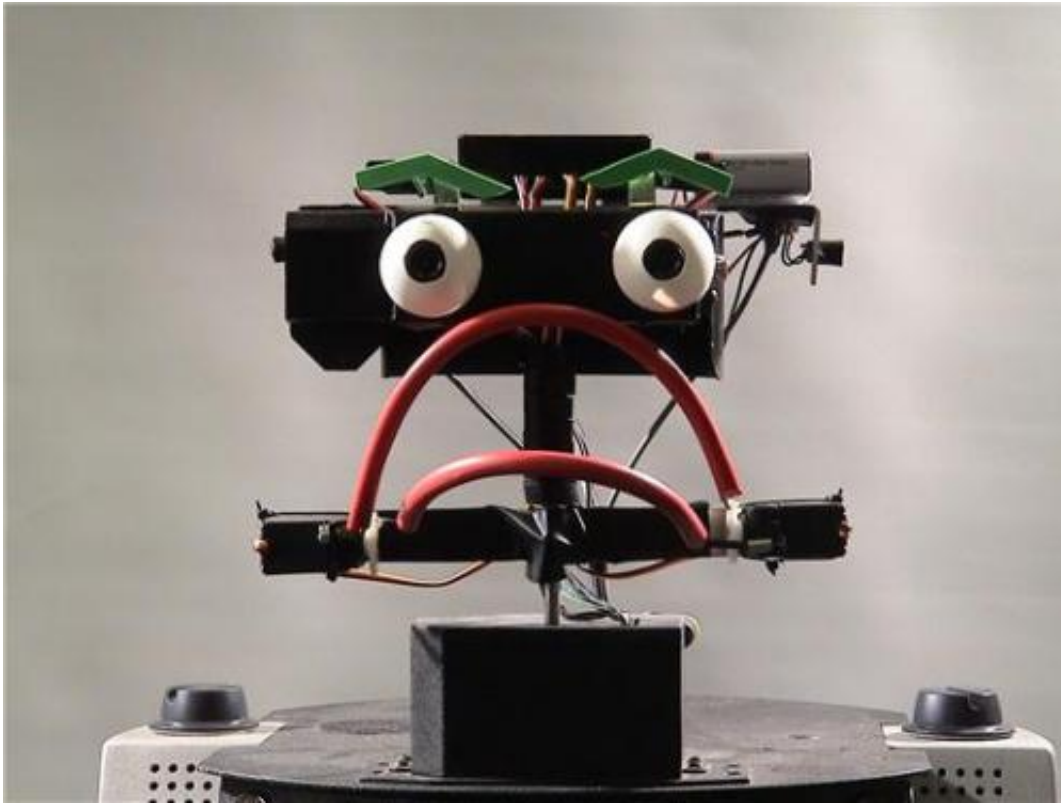
Erwin sad

Scientists will be collating data from the robot's interactions with humans, while also employing a 3D-printed humanoid robot and Keepon – a small yellow robot designed to study social development by interacting with children.

Its simple appearance and behaviour are intended to help children, particularly those with developmental disorders such as autism, to understand its attentive and emotive actions.

The 'non-emotive' Keepon will be used in the research project to study the different reactions people have to it compared to the emotive ERWIN. The aim is to discover which is most effective in engaging with

participants, and whether those interactions are long or short-term.

Provided by University of Lincoln