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The camera you focus AFTER taking the picture

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Blurry family snaps could soon be a thing of the past thanks to a groundbreaking camera.

Scientists have invented a device that lets photographers refocus unsharp images after they are taken.

The camera has a special lens with ten times the normal depth of field - the distance over which the camera can keep subjects in focus.

Using software either within the camera or on a computer it is then possible to pull the image back into focus.

The technology may mean photographers will not have to focus at all until after they press the shutter.



Before and after: The new system allows the user to focus after the photo has been taken

The innovation took two years to develop by scientists at Mitsubishi Electric Research Labs, who call it a "heterodyne light field camera".

Senior research scientist Dr Ramesh Raskar said: "Out-of-focus pictures are the Holy Grail problem.

"But now we can change the original image, which is extremely beneficial."

His colleague Dr Amit Agrawal added: "This means people don't have to worry about focusing."

The key to the system is a transparent slide between the lens and the camera.

This slide, called a masked or coded aperture, is imprinted with a pattern made up of seven rows and seven columns resembling a crossword puzzle.

Some boxes are blacked out while others are transparent to let light through.

When an image is in focus, the resulting photo will look normal. But a photo could be blurred if a user wanted to focus on a face and the camera's auto-focus system was inadvertently aimed at an area behind the subject.

Because of the way the new aperture changes the flow of light, it allows the user to refocus later using the high range of depth of field available.

Dr Raskar said the technology could be incorporated in cameras in the near future and will provide a safety net for people who often take fuzzy pictures.

He added: "Coded or masked aperture gives people extra protection.

"This breaks new ground in understanding the issue of focus - it takes it to the next level of understanding the whole problem."

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