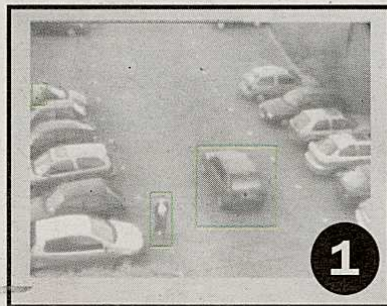
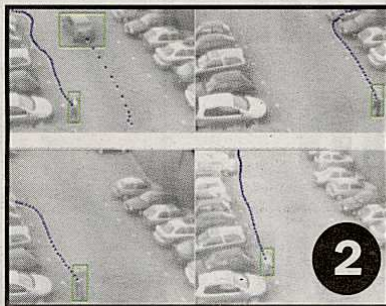


ENTER A SECRET GARDEN

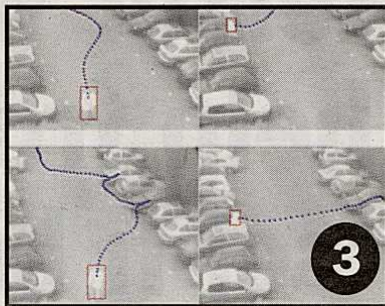
Take a Moat House tour, plus thousands more homes in Property – INSIDE



1



2



3



4

ALARM: What the new CCTV smart surveillance system shows: 1. Normal activity screen shot; 2. Normal behaviour in a car park; 3. Unusual behaviour; 4. Screen shot showing that an alarm has been activated.

TERROR ALERT

US Government funds university to develop hi-tech CCTV system

by Aleisha Scott
aleisha.scott@lincolnshireecho.co.uk

SCIENTISTS working in Lincoln have developed a gadget that can be used to spot terrorists and thieves.

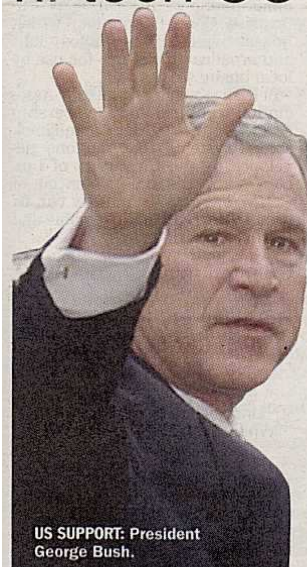
Experts at the University of Lincoln have developed a state-of-the-art CCTV system using money from the US Government.

It is intended that the £200 camera units will eventually be used to improve security at airports across the world.

The cameras work by identifying unusual movements of people in public places.

If they were used in a supermarket car park, for example, the cameras would be programmed with the normal move-

SMART IDEA: Dr Jonathan Owens, one of the team developing 'smart surveillance' systems. *Picture: Anna Draper. Picture reference: 6-4639-13.*



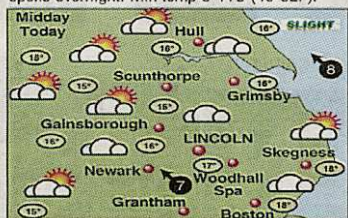
US SUPPORT: President George Bush.

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WEATHER

Lincolnshire Today

Staying dry and bright with sunny intervals and variable amounts of cloud. Light south-easterly winds. Clear during the evening. Max temp 15-18C (59-64F). It is expected to be dry with clear spells overnight. Min temp 8-11C (46-52F).



Lincolnshire outlook.....

- Tomorrow**
Dry, although a lot of cloud and just occasional sun.
- Sunday**
A dry day with some sun, but also a lot of cloud. Mild.
- Monday**
Largely cloudy with little brightness around, but staying dry.

UK yesterday

- Warmest** Wisley 18C (64F)
Coldest Shobdon 4C (39F)
Wettest Wick 18mm
Sunniest Fraserburgh 9 hrs

Tides

today	ht	ht	ht	ht
Boston	10:58	5.3m	23:08	5.2m
Gainsborough	00:43	6.5m	13:23	6.2m
Skegness	10:56	5.8m	23:09	5.8m
tomorrow	ht	ht	ht	ht
Boston	-	-m	12:08	4.6m
Gainsborough	01:33	6.1m	14:39	5.7m
Skegness	-	-m	12:08	5.3m

Sun & Moon Today

	rises	sets
Sun	7.27am	6.14pm
Moon	10.12pm	3.39pm

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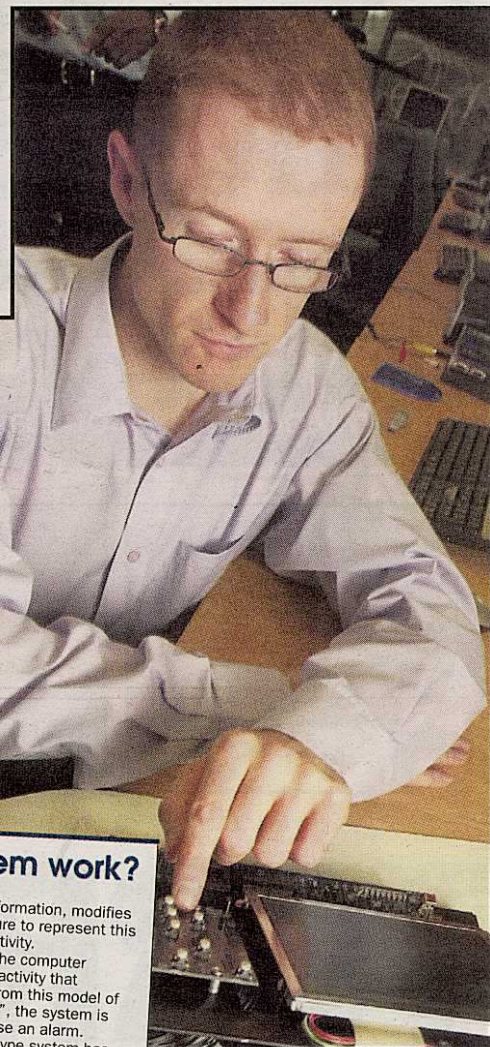
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APPLIANCE OF SCIENCE: Far right, Dr Jonathan Owens, part of a team developing new smart surveillance systems at the University of Lincoln's new Emmtec building (right). Pictures: Anna Draper
Picture reference: 6-4639-16; 28.



Combating terror with help from 'sci-fi brain'

COMPUTERS that mimic the human brain are the stuff of chilling science-fiction fantasies.

But a computer system doing just that has been built at the University of Lincoln.

The intelligent surveillance system copies the way the brain stores and recalls information to identify criminals.

Its developers say it is not meant to replace the role of a human but aims to help security guards monitor areas more effectively.

The university has a contract with the United States Department of Homeland Security to analyse people going through airports.

As well as tackling international terrorism the security system can be used to prevent domestic crime in shopping centres and neighbourhoods as well as monitoring offices and buildings.

The system records information and identifies "interesting" events or behaviour warranting the security officer's attention.

It is also being developed for use in medical and social applications.



How does the system work?

- THE computer first builds a representation of the scene background.
- Moving objects, such as pedestrians, appear 'on top' of this background so the computer can then record their position and other features, such as size and shape.
- Over time, a neural network model, which mimics the way the brain stores and recalls information, modifies its structure to represent this normal activity.
- When the computer observes activity that deviates from this model of "normality", the system is able to raise an alarm.
- A prototype system has already been shown to raise an alarm when a pedestrian lingers suspiciously around parked vehicles.

by Aleisha Scott

aleisha.scott@lincolnshireecho.co.uk

This includes monitoring the elderly at home, detecting anomalous sleep patterns for sufferers of sleep apnoea and diagnosing diseases of the retina.

Researcher Dr Jonathan Owens said the system has far-reaching uses.

"We are not trying to get rid of humans because it can never be as sophisticated as the human mind but we are trying to point them in the right direction," he said.

"The system is in real time which means that a security guard can sit in Lincoln and monitor what is happening in Japan or America, for example.

"Eventually it will be as small as a mobile phone and can be fitted into

any CCTV camera around the world."

The project also received £15,000 funding from the East Midlands Development Agency as well as money from the Engineering and Physical Sciences Research Council.

It is being developed in the university's new £5.3 million East Midlands Media and Technology Enterprise Centre (Emmtec) which houses media and technology labs and broadcasting suites for use by local businesses.

British Security Industry Association technical and membership services director, Alex Carmichael, said: "Systems like the one developed by the University of Lincoln show the true potential of CCTV and how technology can be used in the fight against crime and terrorism worldwide.

"The applications for such systems are diverse."

Emmtec home to first neuro-computer

WHILE the university develops systems for the future, it is also seeking inspiration from the past.

The new Emmtec building is home to the world's first neuro-computer, Minos I.

The computer was made in the 1960s at the Stanford Research

Institute in California by a group of researchers led by Englishman Alfred Brain.

It mimics the neurological system of the brain and is the first example of an image recognition system.

After retiring Mr Brain returned to England to live in Market Rasen.

"Years later Alfred actually rescued Minos I from a skip and brought it back to Market Rasen," said Professor Andrew Hunter of the Faculty of Applied Computing Sciences.

"He passed away earlier this year but his family donated the pioneering machine to the university."

IS TECHNOLOGY THE FUTURE?

Write to Your View, Lincolnshire Echo, Brayford Wharf East, Lincoln, LN5 7AT.

\$150k project part of US fight against terrorism

► continued from Page 1

ment pattern of a person going from their car to the shop and back again.

If someone was then filmed going from car to car, as a thief might, this movement pattern would trigger an alarm to alert security officers.

The \$150,000 project is being sponsored by the United States Department of Homeland Security, which was set up by President Bush to fight terrorism.

The University of Lincoln is working on the device with Eastern Kentucky University and Se-

curaCorp, based in Seattle.

Dr Jonathan Owens and researcher Kofi Appiah have been working on the project since February.

Dr Owens first developed the system in 1999.

"There is a general flow to the way people move in airports and we establish

what is normal patterns of motion and what is abnormal," he said.

"We can also build up a background image to track bags and cases that have been left behind.

"It means that you don't have to have several operators staring at the television all the time, this

system can track and analyse behaviour itself.

"If you have a man sitting in front of 30 screens he will miss things so you need to employ lots of people but if you have a system that can highlight anything unusual the security guard only has to look at that material."