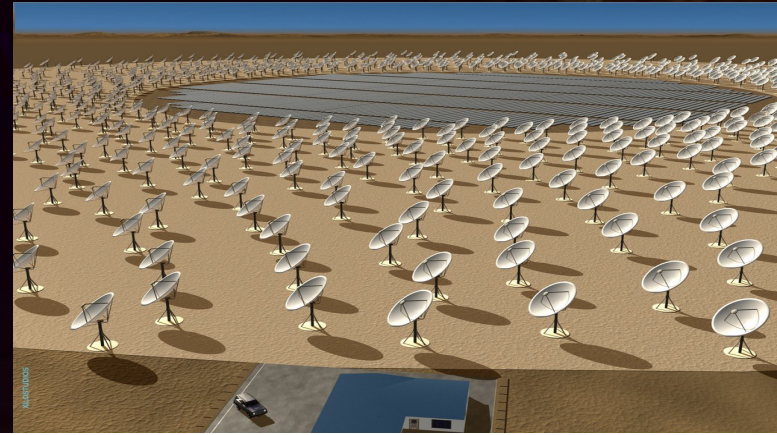


# THE SCHOOLS' CHALLENGE 2012

## WIN AN IPOD TOUCH FOR YOUR DESIGN

The 2012 Schools Roadshow features 4 communications and sensing technologies that BAE Systems have helped develop in recent years.

SQUARE KILOMETRE ARRAY



### 1. Square Kilometre Array (SKA)

This is a global project to link over 3000 radio telescopes to look deeper and in greater detail into space to help us understand how the universe was formed and also search for the existence of alien life forms. BAE Systems engineers are part of a global team of scientists working on this project.

### 2. B.L.A.S.T Brownout Landing Aid Systems Technology

Using radar technology, BAE Systems engineers have created a system that can see through dust storms and help helicopter pilots land even when they can't see the ground because of brownout (swirling dust/sand), fog or smoke.

### 3. ADAPTIV invisibility cloaking

Using sensors to monitor ambient temperatures and clever panels that can be heated and cooled, BAE Systems have designed a cloaking device that means tanks, helicopters and ships can be made invisible to infra red detection.

### 4. Body Wearable Antenna

BAE Systems engineers have found a way to integrate communications technology into the uniform of foot soldiers meaning they can speak and send film and GPS data to colleagues without having to carry heavy or cumbersome equipment.

### We already know and use some of these technologies in our everyday lives:

GPS - Sat Navs in cars

Touch technologies in modern lights

Communications technologies on our mobile phones and computers

Echo location technology in submarines ( Sonar)

Infra red technology on cameras with night vision.

(For more information about the 4 technologies featured in the Schools Roadshow [click here](#))

# THE SCHOOLS' CHALLENGE

## THE CHALLENGE

We want you to choose one or more of the sensing technologies shown below .  
Come up with an idea and design for either an object or system that you could use in the home .  
Your idea could be an invention to save time or make life easier.

B.L.A.S.T



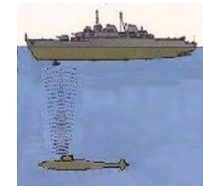
GPS SENSOR



RADAR GUN



TOUCH SENSOR



ECHO LOCATION (SONAR)



IMAGE SENSOR



SOUND SENSOR



VOICE SENSOR



INFRARED/NIGHT VISION

For example, you might come up with a GPS device that will help you locate a lost dog or cat. Or you might want to design a chair that can sense how comfortable you are and adjust accordingly. You might want to invent a pair of glasses that has a built in recognition system. Or you might want to design a jacket that senses how hot or cold the weather is and automatically adjusts to keep your body heat constant.

# THE SCHOOLS' CHALLENGE

ADAPTIV



ADVANCED DISGUISE CAPABILITIES

Make sure your design stands out from the rest...

Your idea must be an original idea, not copied from something you may have seen or heard about. You will need to think about the materials you would like to build your invention from and include these details in your design. Remember too that you will need to give some idea of scale of your design, how big will the finished product be?

Make it clear which kind of sensor your invention will use - it may be that you choose to use more than one type of sensor. Look at some of the pictures on the previous page to see some examples of sensors in every day objects



Smoke Sensor



Parking Sensor

Think also about how strong your design idea needs to be. Other things you will need to think about with your design include:

- WEIGHT**
- FLEXIBILITY**
- COLOUR**
- HUMAN FRIENDLINESS**
- COST**
- CONSTRUCTION**
- RANGE/DURABILITY**
- SAFETY**

Finally, it would be cool if you could make your design planet friendly. How might you use sustainable materials and clean processes in the design and manufacture of your invention? Think also about how your design can be recycled when it comes to the end of its useful life.

# THE SCHOOLS' CHALLENGE

## Entry Details

### Age Restrictions

There are two age categories:

**Primary 9-11**

**Secondary 12-14**

Entries will be accepted from individuals only, however a school can submit as many school entries as they want

Postal entries to be sent to:

**BAE Systems Schools Challenge 2012**

**MGA LTD**

**32 Paul Lane**

**Flockton Moor**

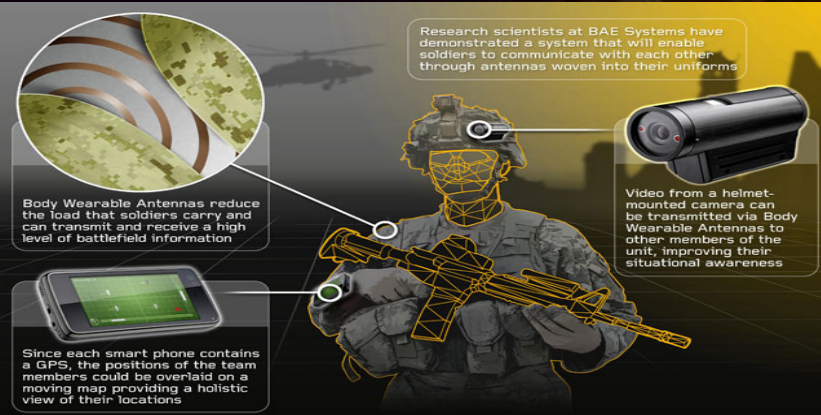
**Wakefield**

**WF4 4BP**



Electronic copies to be sent to:  
[corrie@markgreenopassociates.com](mailto:corrie@markgreenopassociates.com)  
with Schools Challenge 2012 in the subject box

Body Wearable Antenna



**Download the competition template [here](#) to submit your entry. Make sure you include the following information with your entry:**

- Name of school
- Address of school
- Name of teacher
- Your name and age

**BAE Systems are running 3 competitions throughout 2012**

**Feb 6<sup>th</sup> – April 6<sup>th</sup>**

**April 16<sup>th</sup> – July 6<sup>th</sup>**

**Sep 3<sup>rd</sup> – Dec 3<sup>rd</sup>**

**BAE SYSTEMS**