WHAT IS BLAST?

Brownout Landing Aid System Technology, or BLAST, answers the need for a lightweight, active system that gives helicopter pilots visual awareness in poor visibility environments like sand, snow, fog, smoke and rain. Particularly in desert conditions, when a helicopter is either landing or taking off, the swirling rotor blades can create a dust storm which makes it impossible for the pilot to see where they are. BLAST gives the pilot an image on a screen which ‘sees’ through the dust so that they can see potential hazards and most importantly judge how high they are above the ground.

HOW BLAST WORKS

Brownout Landing Aid System Technology, uses a millimetre-wave radar seeker to scan a landing zone in real time, in combination with digital terrain elevation data. Pilots receive situational information and warnings of obstacles via a brownout symbology set using a cockpit, heads-up or helmet-mounted display.

Radar can see through clouds, dust and rain and therefore pilots can use this information to help them safely navigate their helicopters even in the worst conditions.
DID YOU KNOW?

Blowing sand and dust can cause the illusion of a tilted horizon. A pilot not using the flight instruments for reference may instinctively try to level the aircraft with respect to the false horizon, resulting in an accident. Also, helicopter rotor wash causes sand to blow around outside the cockpit windows and can lead the pilot to experience the vector illusion, where the helicopter appears to be turning when in fact it is not. BLAST helps the pilot overcome both of these hazards.

BLAST uses different sensors that can ‘see’ through difficult conditions to help the pilot.
DANGERS

Brownout is the term that is used to describe conditions of no or very poor visibility. Over one third of all helicopter crashes have happened because of brownout. BLAST technology has dramatically improved safety.

BLAST TECHNOLOGY

TASKS

We all rely on our sight so much, we cannot imagine what it is like to navigate without the use of our eyes.

And yet, many people have to rely on sensing instruments to help them see in the dark or in places where brownout means you cannot see hazards around you.

TASK 1

Can you think of 5 different examples where sensing technology is used to see things that would otherwise be hidden to us. EG Infrared cameras are used by the Police to follow the heat signature of people and vehicles either in the dark or in areas, like woods, where a view might be obscured by trees.

TASK 2

Try this with a group of your friends.

Set a course around the room where someone has to walk in and out and around some pieces of paper.

MAKE SURE THERE ARE NO TRIP HAZARDS!

Get a volunteer to walk around the course. EASY isn’t it?

Now, blindfold your volunteer and see if they can navigate around the bits of paper. IMPOSSIBLE right?

Now get your volunteer to try the course again, using the blindfold, but this time you give them instructions. So many paces forward, a turn to the left etc etc.

Try to resist the urge to get hold of them and steer them around the course.

TASK 3

After you have completed task 2, make a list of the problems you had when trying to navigate the blindfolded person around the course. How did you overcome them?

Imagine what it is like to be a pilot having to fly a plane without seeing where they are going. They rely very heavily on sensors to help them do their job. Can you list 10 objects that you come across every day that have some kind of sensor in them? eg mobile phone.