<center>Target location technology</center>

Technologies used:

Today there are many differing forms of tracking systems that can be used to locate targets accurately very much different to the simple procedures used on aircraft in world war two. One of these technologies is symbology. These are imaged laid over the real world images. The images give target position and other relevant information such as the planes heading. The images change as quickly as the real world view change, there is no visible delay as this could have fatal consequences. The target is clear and weapons can easily be directed to the correct point. The guidance images are displayed in the pilot's head-mounted display. These are developed at BAE systems, and their design is critical due to the setting they are used in. The headsets are linked to a powerful and accurate computer that works very quickly to update the view almost instantly and to give warnings about dangerous situations. The Kiowa helicopter from the US Army used a symbology system that included night vision. The system recorded the mission allowing the pilot to play it back.

The US Army also uses a laser as a target locator. It has been developed into a hand held laser targeting technology that doesn't damage eyes. Currently they are largely ground based but they allow targets to be located and intensified even in the dark. This technology has been transferred onto a military fighter aircraft for range finding in light and dark environments. The system also gives a range finder which can vary between the direct view and an intensified view. The system can digitally provide a magnetic compass that gives range and elevation. They are already used across the world.

Another possible technology is the use of intelligent radar systems that lock onto targets allowing missile to be guided. This technology can be found on the patriot missile, which is aimed at incoming missiles. The system depends on ground-based radar that locates and tracks targets however this technology could be developed to fit on an aircraft like the sidewinder missile. This is a very long ranging and variable system. It can run automatically or an operator can intervene if necessary but these need to be very accurate due the speed the missiles travel at. The radar antenna can scan the sky, identify targets, determines aim and positioning of target, gives information and can help direct the missile to the target even when missile has been launched. Two operators watch the progress of the missiles, they can then change things if necessary such as deselecting targets. One form of missile has its own in-built guidance computer and radar transmitter allowing it to guide itself.

Benefits and limitations

Benefits of the technology	Limitations of the technology
1) The technology allows targets to be located very accurately. Especially if the technology is watched over by operators such as the patriot missile radar system. The accuracy could save many lives, as civilian positions are less likely to be hit with the accuracy of the technology. Therefore military targets can be located successfully allowing for a less morbid military operation.	1) The technology often needs much equipment that is highly developed and costly. As resources such as missiles with their built in computer are expended during war, much money is lost. In less developed countries this money would be needed for other vital materials, so the technology may not be used. The wastage of materials would not be environmentally friendly.

2) As the systems are advanced they can locate target and attack them very quickly, especially if they are automatic. The speed could be vital in protecting and attacking during a military assignment.	2) The systems are often dependent on a computer. These are continually made more and more reliable. However if they were to go wrong the pilots and new target could be put in a fatal situation. For example if the night vision with simbology was operating too slowly then the pilot could easily fly into a mountain or fire a missile at a wrong target.
3) The technology works quickly and accurately and so can be used in many situations to protect and attack targets. This means the technology adds to the safety of the users and the civilians near the target area.	3) The new technology would need people to be trained to be able to operate the systems. If a person puts on a headset and does not know what the lines and boxes mean they be useless at controlling it. However the training takes time to be done safely this will cost money but is necessary for the technology to be used