

The global positioning system

GLOBAL POSITIONING SYSTEM (GPS)

the 30-second history

The global positioning system

(GPS) was originally designed for military and intelligence use. The US government developed GPS at the height of the Cold War in the 1960s to track US submarines carrying nuclear missiles. Scientists found that satellites could be tracked from the ground by measuring the frequency of the radio signals they emitted, the so-called 'Doppler Effect'. GPS uses a network of satellites that orbit Earth and beam down signals carrying a time code and geographical data to a GPS receiver. The invention has transformed navigation, since GPS accurately calculates geographical positions to a matter of metres in all weather conditions, and operates independently of telephone or Internet reception. But it wasn't until 1983, when the former Soviet Union shot down a Korean passenger jet that had strayed into restricted airspace, that the US government opened up GPS for civilian use so that aeroplanes, shipping and transport could accurately fix their positions. The US government maintains the system and makes it freely accessible, but it can selectively deny GPS access, for example to the Indian military in 1999 during hostilities in Kashmir. Today, GPS has many uses beyond navigation such as map-making, earthquake research, climate studies and an outdoor treasure-hunting game known as geocaching.

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ROGER LEE EASTON
1927-2014
American scientist and physicist, principal inventor and designer of the Global Positioning System, along with Ivan Getling and Bradford Parkinson

30-SECOND TEXT

Judith Hodge

3-MINUTE OVERVIEW
Due to the potential denial of access and monitoring by the US government, other alternative systems are in use or being developed. These include the Russian Global Navigation Satellite System (GLONASS), which can be added to GPS devices, making more satellites available and enabling positions to be fixed to within 2 metres (6½ feet). Others include the planned European Union Galileo positioning system, China's BeiDou Navigation Satellite System and India's Indian Regional Navigation Satellite System (NAVIC).

GPS receivers have been miniaturized to a few integrated circuits; they are now found in cars, planes and boats, as well as laptop computers.

