

# Satellites and their potentials in different areas

[Science](#), [Astronomy](#)



Satellites commonly are defined as man-made objects or instruments mounted in orbit to aid in data gathering for various uses like communications, mapping, disasters amongst others and usually, rotate around the earth as well as on supplementary planets. There exist two different types of satellites: natural as well as artificial. Sputnik, a man-made satellite was the first to be launched on October 4, 1957 under the innovation and leadership of Socialist Republics commonly known as USSR, to collect various scientific data on natural phenomena. These objects have had various potentials especially in space researches which have had strong influences on developments across the globe. However, further research needs to be undertaken to assist in strengthening man-made satellite use as this paper discusses.

Man-made or artificial satellites, revolving the earth, have had their use being applied in various fields such as surveillances, communication, weather predictions and disaster management, location tracking through GPS, remote sensing which have guided various developments across the globe. Before their inventions, by early scientists, these information or data were collected using physical observation which had several limitations. However, since the inventions, especially in the last decades, more powerful sensors have been developed with advanced capabilities for data retrieval, processing and transfers especially geophysical studies. Satellites have the capabilities of vast areas on earth view and coverage at any single time meaning that they gather then transfer data faster than ground instruments. Since they are mounted above clouds and other obstacles, they have excellent and widespread views, far much better than ground telescopes.

Initially, Television signals could not travel far distances since they move in straight lines and hence, they could be blocked by tall buildings, trees or even end up disappearing in space. Having phone communication were also a big problem too since installing telecommunication wires below the waters or above the ground were too costly and tedious. But with the introduction of satellites, phone and TV signals are instantly transferred into space and speedily transmitted back onto ground for distribution to various earth's locations. Most modern satellites come with two parts: antennae for sending and receiving signals, and source of power for example battery or solar for activating the operations. Some also have cameras and scientific sensors pointing towards the earth's surface for extracting information on water, land and air. During some times, in order to gather information of the universe and solar system, they face the space. One fascinating fact is that satellites never collide with each other because they are placed on orbits well designed to avoid others, and also NASA and other observatory bodies, keep their tracks. There are several technologies that can be employed for strengthening potentials in satellite use, like, in Egypt, recommends both horizontal involving widening application ranges by using more high powered sensors and stimulating synergistic data from various sensors and vertical through developing more multifaceted applications for extracting geophysical parameters and applying them in modeling geophysical occurrences.

Secondly, the biggest challenge currently is extremely high costs of satellites which makes is difficult for individual acquisitions as such, scientists, researchers, nations needs more focus for investing in developing robust

large-scale markets which supports production of small, affordable satellites that will be able to meet the growing demands of world's growing population. Additionally, due the increasing acquisition and usage of Galileo satellites, navigation will get highly reliable and precise hence supplementing the existing technologies, which will allow pave way towards developing more earth observations applications.

Finally, developing countries needs more capacity development on satellites technological potentials as well as its application areas like in wildlife tracking, terrorism, education and health amongst others. This will greatly contribute towards development of these nations.

In conclusion, application of satellites in various duties such as surveillance, disaster management, GPS tracking, and communication among others have significantly contributed to development of the earth's cities, towns and natural resources protection. Developing countries have however not fully explored the much potentials for satellites and hence, the need for responsible authorities like National Aeronautics and Space Administration, to consider availing resources towards their capacity development. For example, MODIS (Moderate Resolution Imaging Spectroradiometer) have narrow bandwidths for use even in extracting pigments concentrations. In each nation, national earth observation data archives needs to also be established towards proper storage and availability of data at any required time immediately it's required.