

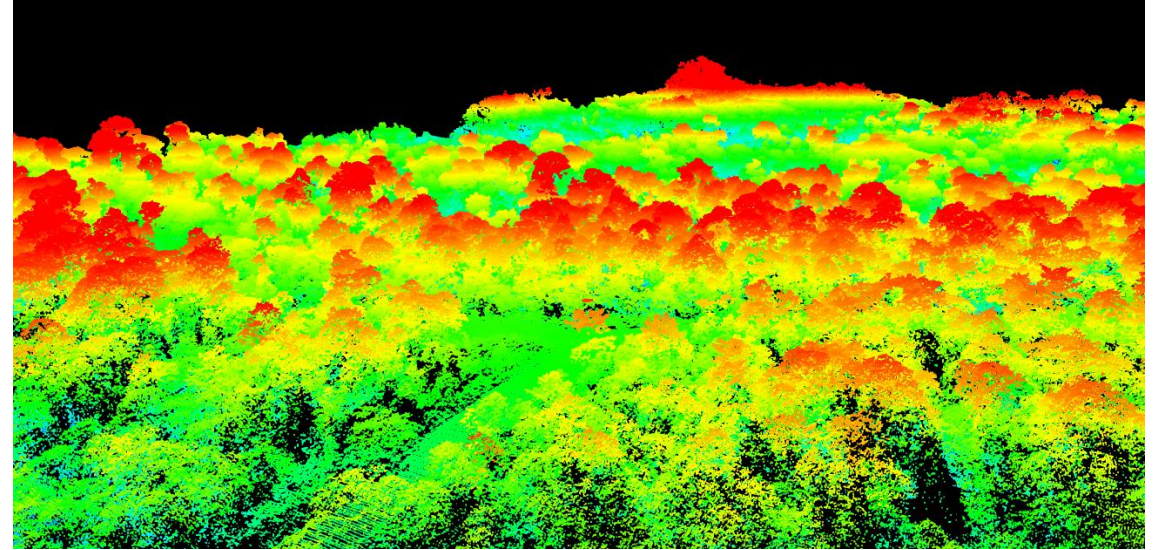
# LiDAR

is an acronym for **Light Detection and Ranging**. It is an acronym for Light Detection and Ranging. It is a remote sensing technology that uses the energy from scanner which emits light to collect information on the Earth's surface. This light will hit any objects on the earth's surface and return back to the sensor. Basically, it measures the distances and time taken to travel to the earth's surface.

The LiDAR point cloud contains valuable attributes such as the x and y coordinates, elevation data (z values), return numbers and light intensity value. Raw LiDAR data are usually classified accordingly to represent the type of features. For example, if the reflected light hit a tree, it might be classified as vegetation. And if it reflected off of the ground, it might be classified as ground. Therefore, the LiDAR technology is useful for generating a precise, high resolution, three-dimensional model of the Earth's topography.



Dense LiDAR points in RGB colour over Stadium Sultan Haji Hassanal Bolkiah in Brunei & Muara District, Brunei Darussalam. The colour was imported from the aerial imagery of the stadium. *Image courtesy of Soartech Systems.*



Dense LiDAR points in high vegetation area. The laser able to penetrate the high and dense vegetation, reaching to the ground surface, which is useful in generating accurate terrain model. The area is in a dense and remote forest in Kuala Belait district. Image courtesy of Soartech Systems.

As technology are advancing over the years, many LiDAR sensors were built with the function to collect point clouds in full colours (i.e. RGB). In some cases, the point cloud in RGB can also be processed by importing the colour from high resolution aerial imagery.



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