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**International Journal of  
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(IJIRES)**

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**“A Study on Usage of Google Maps by Travellers in  
Madurai City”**

*Published in* **IJIRES Journal** **Volume - 8, Issue - 1, Jan.-Feb., 2021**

**January-February, 2021**

# A Study on Usage of Google Maps by Travellers in Madurai City

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Date of publication (dd/mm/yyyy): 05/03/2021

**Abstract** – Navigation tools are very many and they help in locating and covering place and distance. They are a guide in the land of journey. As inhabitants move from place to place for various reasons, civilizations have grown and complexities of routes have emerged due to thick population, men travel from place to place for work, and other important assignments. As the world shrinks more importance is attached to time. There is rush and bustle in activity wanting to reach unknown destinations, both by the drivers of the vehicle and by the travellers. This calls for use of technology in navigation. Google maps are a travel tool kit designed to identify destinations. It's usage in India and in Madurai by travellers is studied here.

**Keywords** – Google Maps, Travellers, Navigation, Compass, Android Phones.

## I. INTRODUCTION

Tools of navigation help in tracing traveller's destiny. Some of the many tools used for navigation are bond chronometer, by grave position line slide rule and so on. As travelling has increased and men move round the globe, it is important to cover distance and space without disturbing the other. The navigations tools used earlier are,

### *Bond Chronometer:*

This timekeeper was the first American-made marine timekeeper taken to sea. William crunch bond, a 23-year-old boston clockmaker, crafted it during the war of 1812. This artefact is part of the national museum of American history's collection.

### *By Grave Position-line Slide Rule:*

Celestial navigation requires complicated computations. Performing these calculations in cramped open cockpits with low temperatures and wind speeds of over 160 kilometers (100 miles) per hour was part of what made navigation difficult in the early years of aviation. Thankfully, Capt. L.C. Bygrave developed this handy slide rule computation at the time.

### *Sextant:*

Navigating in the sea: this sextant was one of the navigation tools invented in the 18<sup>th</sup> century by british mathematical instruments makers that permitted mariners to find their position much better than ever before. The sextant became the most essential instrument for celestial navigation, used to find the angle of a celestial body above the horizon. Jesse ramsden, who made this sextant, also devised a machine to divide the scale on the sextant very precisely.

### *Apollo Sextant and Scanning Telescope:*

### *Navigating in Space:*

To determine position in space, an Apollo astronaut located a specific star using a single-power, wide-field telescope and then took a fix using a sextant. While this instrument does not look like a traditional sextant, the basic procedure is descended from centuries-old methods used by navigators at sea and in the air.

#### *Dutch Pendulum Clock:*

In the 17<sup>th</sup> century, several inventors were trying to make an accurate clock for finding longitude at sea. In pursuit of a sea clock, Christiaan Huygens, a dutch mathematician, changed timekeeping forever when he patented the first working pendulum clock in 1656 and later devised a watch regulator called a balance spring. Pendulum clocks immediately became the best timekeepers for use on land but they didn't work accurately on a heaving ship's deck. Huygens worked with several dutch clockmakers, including Johannes van ceulen who made this table clock around 1680. It is one of the earliest clocks with a pendulum.

Types of navigation equipment and resources used onboard modern ships.

Gone are the days when a ship navigation officer had to take help of unconventional ways to plan and navigate a voyage at sea. Today, a ship officer has myriad of marine navigation equipment which makes his life a lot simpler, thanks to the advancement in technology. Moreover, present-day seafarers are trained so as to know the functioning and operation of all modern day navigational equipment that has made the journey at sea smoother and safer.

#### *Gyro Compass:-*

It is used for finding the right direction. Unlike magnetic compass, gyro compass is not hampered by external magnetic field. It is used to find correct north position, which is also the earth's rotational axis. Its repeater system must be present in the steering platform for emergency steering.

#### *Radar:-*

It is used to determine the distance of the ship from land, other ships, or any floating object out at sea.

#### *Magnetic Compass:-*

The magnetic compass work in conjunction with the magnetic field of the earth. It is used to get planned direction for the voyage.

#### *Auto Pilot:-*

It is a combination of hydraulic, mechanical and electrical system and is used to control the ship's steering system from a remote location (Navigation bridge).

#### *ARPA:-*

Automatic Radar Plotting Aid displays the position of a ship and other vessels nearby. The radar displays the position of the ships in the vicinity and selects the course for the vessels by avoiding any kind of collision.

#### *Automatic Tracking Aid:-*

Just like ARPA, automatic tracking aid displays the information on tracked targets in graphic and numeric to generate a planned layout for a safer and collision-free course.

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*Speed & Distance Log Device:-*

The device is used to measure the speed and the distance travelled by a ship from a set point. By calculating the same, ETA of the ship is adjusted or given to the port authority and agent.

*Echo Sounder:-*

This instrument is used to measure the depth of the water below the ship's bottom using sound waves.

*Electronic Chart Display Information System:-*

ECDIS is a development in the navigational chart system used in naval vessels and ships. With the use of the electronic chart system, it has become easier for a ship's navigating crew to pinpoint locations, and attaining directions are easier than before.

*Automatic Identification System*

AIS is a system which helps to pinpoint the location and other navigational statistics of ships. AIS uses VHF radio channels as transmitters and receivers to send and receive messages between ships which endeavours to fulfil a lot of responsibilities.

*Long Range Tracking and Identification (LRIT) System*

LRIT is an international tracking and identification system incorporated by the IMO under its SOLAS convention to ensure a through tracking system for ships across the world.

*Rudder Angle Indicator*

Rudder angle indicator, as the name indicates, provide the angle of the rudder. The display is provided on bridge to control the rate of turn and rudder angle of the ship.

*Voyage Data Recorder*

A VDR or voyage data recorder is an instrument safely installed on a ship to continuously record vital information related to the operation of a vessel. It contains a voice recording system for a period of at least 12 hours. This recording is recovered and made use of for investigation in events of accidents.

*Rate of Turn Indicator*

It indicates how fast the ship is turning at steady rate, normally shown as number of degree turned.

*GPS Receiver*

A global positioning system (GPS) receiver is a display system used to show the ship's location with the help of global positioning satellite in the earth's orbit.

Google maps among other navigation tools are widely used and is attempted for a detailed study here.

Google maps is a web mapping service developed by Google. It offers satellite Imagery, aerial photography, street maps, 360° panoramic views of streets (street view), real-time traffic conditions (Google Traffic), and route planning for travelling by foot, car, bicycle and air or public transportation. In October 2004, the company was acquired by Google, which converted it into a web application. Google maps was launched in February

2005. The service's front end utilizes JavaScript, XML, and Ajax. Google maps offers an API that allows maps to be embedded on third-party websites, and offers a locator for urban businesses and other organisations in numerous countries around the world.

Google maps was first announced on the Google blog on February 8, 2005. In September 2005, in the aftermath of Hurricane Katrina, Google maps quickly updated its satellite imagery of New Orleans to allow users to view the extent of the flooding in various parts of that city. In October 2009, Google replaced Tele Atlas as their primary supplier of geo spatial data in the US version of Maps and used their own data.

On April 19, 2011, Map Maker was added to the American version of Google Maps, allowing any viewer to edit and add changes to Google maps. This provides Google with local map updates almost in real time instead waiting for digital map data companies to release more infrequent updates. In December 2012, the Google Maps application was separately made available in the App store, after Apple removed it from its default installation of the mobile operating system version Ios 6. On January 29, 2013, Google Maps was updated to include a map of North Korea.

On April 29, 2015, users of the classic Google Maps were forwarded to the new Google Maps with the option to revert removed from the interface. In 2016, the Government of South Korea offered Google conditional access to the country's geographic database - access that already allows indigenous Korean mapping providers high-detail maps. Google declined the offer, as it was unwilling to accept restrictions on reducing the quality around locations the South Korean government felt were sensitive.

In May 2018 Google announced major changes to the API structure starting June 11, 2018. This change consolidates the 18 different endpoints into three services and merges the basic and premium plan into one. A major consequence of this change is a 1400% price raise for users of the basic plan with only six weeks of notice. This sudden move caused a harsh reaction within the developer's community. In June, Google postponed the change date to July 16, 2018. In August 2018, Google maps designed its over-all view into a 3D globe dropping the Mercator projection, which was used to project the planet onto a flat surface. In January 2019, Google maps added speed trap and speed camera alerts as reported by other users.

Directions and transit-Google maps provides a route planner, allowing users to find available directions through driving, public transportation, walking or biking. Google has partnered globally with over 800 public transportation providers to adopt General Transit Feed Specification (GTFS), making the data available to third parties. Google Traffic offers traffic data in real-time, using a colored map overlay to display the speed of vehicles on particular roads. Crowdsourcing is used to obtain the GPS-determined locations of a large number of cell phone users, from which live traffic maps are produced.

Street view – On May 25, 2007, Google released Google Street View, a new feature of Google Maps which provides 360° panoramic street-level views of various locations. On the date of release, the feature only included five cities in the US. It has since expanded to thousands of locations around the world. In July 2009, Google began mapping college campuses and surrounding paths and trails.

Business listings – Google collates business listings from multiple on-line and off-line sources. To reduce duplication in the index, Google's algorithm combines listings automatically based on address, phone number, or geocode, but sometimes information for separate businesses will be inadvertently merged with each other,