February 1975 B74-10300

NASA TECH BRIEF

NASA Pasadena Office

Location of Vehicles Using AM Station Broadcasting Signals

A system has been studied which can be used in locating police, emergency, and fleet vehicles within a defined city area. The background of this study is published in a report entitled "Vehicle Location Study Phase O Report." The report discusses various systems used in navigation and approaches suitable for vehicle location.

In the system studied, imaginary hyperbolic grid patterns formed by three local AM broadcasting stations are utilized. Each hyperbola is defined by the constant phase difference between arbitrary signals integrally related to those coming from two of the three stations. When three stations are used, a grid is formed covering an area with intersecting hyperbolas. Vehicles traveling within this area detect the change in position within the grid and transmit this information to a central monitoring station.

Each vehicle is equipped with three phase-lock loop receivers. Each receiver unit is tuned to one of the three AM stations and generates the same arbitrary signal. The relative phases of these signals vary as the vehicle travels within the hyperbolic grid. This information is detected by the receivers and is stored electronically. The change in vehicle position within the grid is automatically transmitted after interrogation by the central monitoring system. The central monitoring system computer then calculates the geographical position of the vehicle from the change in grid position.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
NASA Pasadena Office
4800 Oak Grove Drive
Pasadena, California 91103
Reference: TSP74-10300

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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under contract to
NASA Pasadena Office
(NPO-13217)

Category: 02 (Electronics Systems)