

A SURVEY OF THE APPLICATIONS OF MULTILATERATION IN CIVIL AVIATION

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ABSTRACT

Determination of unambiguous real time position information is one of the primary concerns of civilian applications such as air traffic control as well as defence requirements involving modern Electronic Warfare systems. Civilian air traffic control is facing the problem of huge infrastructure costs due to the requirement of additional avionics equipment onboard the aircraft necessitated by the use of traditional radar systems. Also the update rate of radar derived targets on the controller screen is low resulting in ambiguous resolution of targets. All these and many more issues can be addressed by the wise use of the concept of multilateration. The distinguishing feature of hyperbolic multilateration systems is that the position is estimated from differential arrival times of a pulse transmitted over several distinct paths. Thus no absolute time reference is required. In this paper, the applications of multilateration systems are discussed in detail with emphasis on the civil aviation sector.

KEYWORDS: Hyperbolic, Multilateration, TDOA, Aviation

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