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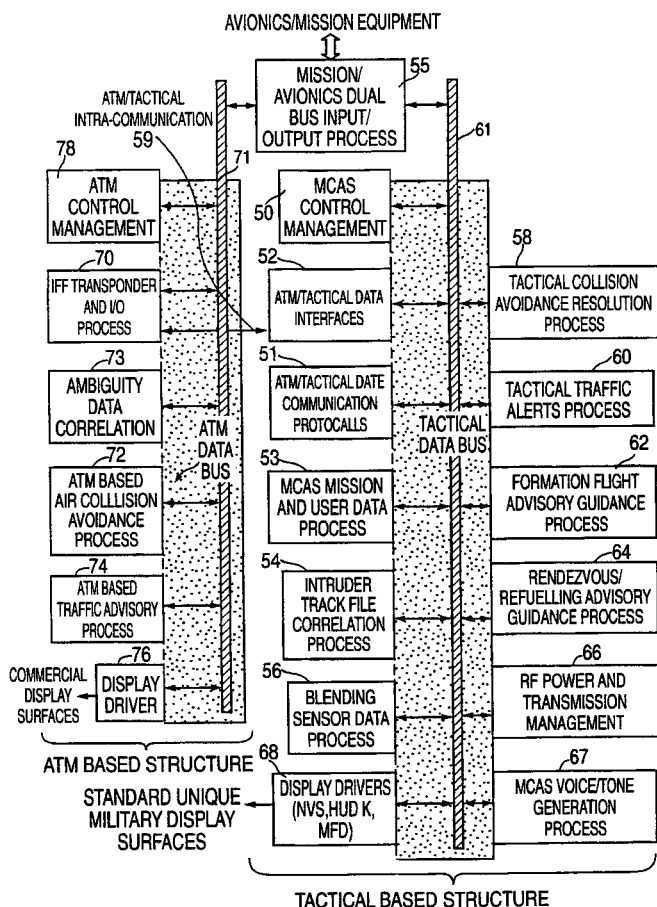
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(54) Title: MIDAIR COLLISION AVOIDANCE SYSTEM



(57) Abstract: A midair collision avoidance system (MCAS) employs an existing design of Traffic Alert and Collision Avoidance System (TCAS) as a module (20) and seamlessly integrates it with a customized tactical module (22) which is capable of providing unique tactical avoidance guidance control and display. The tactical module handles all phases of a tactical mission, including formation flight (62) (e.g., formation fall-in, arming formation flight, engaging formation flight following, and formation break-away), and an air-refueling sequence (64) (e.g., rendezvous, link-up, re-fueling, and disengaging air-refueling). The tactical module divides the air space around the aircraft into advisory (84), caution (82), and warning (80) zones and for each provides display, tone and voice alerts to facilitate pop-up avoidance guidance commands. Military aircraft can thus effectively avoid mid air and near mid air collision situations in all three different operation modes: air traffic control (ATC) management mode, tactical mode, and a mixed mode.



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