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Virtual reality based safety system for helicopters

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This presentation will articulate the conceptual and practical laboratory implementation of Virtual Reality Based safety system for landing of Helicopters in adverse environments..The use of computer generated high quality real-time video provides engineers/scientists/electronic game designers a powerful tool in so many applications that even the sky is no longer the limit. The advent of micro and nanoelectronics further enables complicated devices to be put into smaller, inexpensive, and robust packages. During the last few years, smaller video-image-based devices have been installed in land-based vehicles to enhance driving comfort, convenience, and safety. These include navigational aids, GPS, collision avoidance devices, surround-view systems and many others. The proliferation of these devices is mainly due to the relatively inexpensive and short life span of land vehicles compared to that of airplanes (and submarines). The authors in the past have developed a concept to aid helicopter pilots to land their craft when it is not possible to use the out-of-the-window view for a safe landing. This presentation works further on the development of an aid for landing on a moving platform such as a shipboard heliport. For landing on a shipboard platform, in addition to the obstacles of water spray and mist (due to sea state conditions), frequent fog, and other weather related elements, a moving platform with six degrees of motion (three linear and three angular) creates even more challenges for the pilot. This presentation provides a potential solution to the problems listed above. According to the analysis and preliminary computer simulation, the proposed landing aid may even have the potential to become an autonomous landing system and could be used in fixed wing aircraft and unmanned aerial vehicles as well.

Biography

Omar Khan is currently working as an Engineering Manager for an industrial and commercial firm. In his prior capacities, Omar served at various defense and commercial companies including United Defense, BAE Systems, MAV6 and Curtiss Wright where his roles included research and development, systems engineering, warfare and operations analysis, product management and international business development. Mr. Khan has authored several technical publications in the areas of modeling and simulation for naval weapon systems and holds patents in the same field. He received a Bachelor of Science degree in electrical engineering from the University of Engineering and Technology Lahore, a master of science in electrical engineering from Cleveland State University and an MBA from the University of Minnesota, Twin Cities.

Paul Huang has over 40 years of engineering experience in academia, electro-hydraulic systems, sensor systems, servo systems, communication systems, robotics, system integration, ordnance systems, and modeling and simulation. Mr. Huang has worked on many naval and army weapon systems. Mr. Huang has served as a consultant for many industries in the area of sensor systems, test equipment, medical devices, and ordnance systems. Mr. Huang is a former artillery officer. He has co-authored two books and over 60 technical publications. Mr. Huang has taught technical courses in different countries. Mr. Huang also holds several US and international patents that ranging from devices, software, to systems. He received MSEE and PhD degrees from University of Minnesota.

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