

Abstract—In this paper, we present obstacles avoidance and altitude control algorithms based on fuzzy sets and possibilities distributions to control the blimp's complexity and main behaviors of the system. The fuzzy knowledge base is designed empirically to introduce two-layer fuzzy logic controllers which have the ability to reduce the ultrasonic sensor uncertainties and to estimate the shortest distance between the blimp and the objects. Finally, the results of the experiments show the algorithm is improving the performance of the blimp to avoid obstacles safely and maintain at a certain altitude.