

Abstract—In this paper, aerial-ground robots system has been presented that composed by ground and blimp robots. The blimp robot equipped with single camera in order to scan the environment to detect the ground robot and any obstacles in the environment. The detection algorithm has been designed based on fuzzy edge detection and shapecolor features techniques. The blimp will share the environment map to the ground control station. Then, the global optimal path with avoiding obstacles is generated by enhanced genetic algorithm by modified the search A*. Several experiments were carried out in a simulation as well as indoor environments to verify the system applicability. The proposed robotic system shows good results in simultaneous navigation and mapping applications.