



US005671140A

United States Patent [19]

[11] Patent Number: 5,671,140

Bessacini et al.

[45] Date of Patent: Sep. 23, 1997

[54] FUZZY CONTROLLER FOR TARGET INTERCEPT GUIDANCE

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[57] ABSTRACT

A target intercept guidance system for directing a steerable object, such as a torpedo. The guidance system senses the bearing and range between a first site and a second site and determines the position of the steerable object as it moves toward the second site. Two error functions are produced. The first error function represents the angle between the bearing from the steerable object to the second site and the course of the steerable object. The second error signal represents the rate of change of that angle. These error signals are classified into first and second sensed linguistic variables based upon membership functions from the first and second sensed variable membership function sets to become fuzzy inputs that produce fuzzy output control output membership functions from a control output membership function set based upon logical manipulation of the fuzzy inputs. These fuzzy control output membership functions are converted into an output having an appropriate form for control.

[21] Appl. No.: 498,812

[22] Filed: Jul. 6, 1995

[51] Int. Cl.⁶ G06F 165/00

[52] U.S. Cl. 364/424.032; 364/423.098; 395/905; 244/3.13; 244/3.15

[58] Field of Search 364/423.098, 424.027, 364/424.032, 462, 516; 395/3, 900, 905; 318/589; 244/3.1, 3.11, 3.13, 3.14, 3.15, 3.19

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30 Claims, 12 Drawing Sheets

