

ABSTRACT

At this time of transportation is getting more and grow. But other than a positive impact to humans, also can have a negative impact. One is the higher rate of accidents. It is caused by several factors one of which is the human factor (human error). Man with all the advantages have disadvantages, eg it is often drowsy driving and also less proficient in driving a vehicle. One solution to the problem that is slowly started to replace the human role in the system for unmanned vehicle navigation using artificial intelligence. Expected by the navigation system can be an alternative to reduce the level of injury caused by humans.

Navigation system made in this thesis using fuzzy as the engine. Fuzzy was chosen because it has such advantages of this method to solve the problem by way of reasoning that is represented into the knowledge base that matches the unmanned vehicle navigation system, besides that fuzzy can handle cases that require a decision that "gray", compatible with the vehicle navigation system this.

Fuzzy systems that use this use 5 distance sensors placed around the vehicle (car) and also the speed as input. Input is then in the classification into a trapezoidal membership function for variable distances. Later in the process of inference rules is made 125 as the base of knowledge and 16 additional rules to handle special cases that cannot be dealt with only using 3 sensor distance. The defuzzification process using Sugeno model are considered to have good speed is needed for real time systems.

For the test conducted in the form of simulation, namely by trying to fuzzy results that are designed into the created route. The route for the test is divided into 3 levels from the easiest to the most difficult. From the test shows that the fuzzy system on select both the membership functions, rule or additional rule that is used is enough to make a good navigation system.

Keywords: Fuzzy, unmanned vehicle navigation system, real time, rule, defuzzification, classification, trapezoid, simulation