

## عنوان مقاله:

Fuzzy Fault Tree Analysis for Navigation System in a Fire Control System

## محل انتشار:

چهارمین کنفرانس بین المللی مهندسی قابلیت اطمینان (سال: 1395)

تعداد صفحات اصل مقاله: 1

## نویسندگان:

Mohammad Esmaeily - Marine Industries Organization, Mashhad, Iran

Behrang Sakhaee - Marine Industries Organization, Mashhad, Iran

Mahdi Ardeshiri - Marine Industries Organization, Mashhad, Iran

## خلاصه مقاله:

Navigation system in Fire Control Systems (FCSs), are as the eyes of these systems, so that, their inaccurate performance can be lead to economic losses and reduced safety. In this paper, different potential causes for incorrect performance of the navigation system in a FCS that consists of radar, gyro system, positioning system and data communication system is identified using the studying of functional specifications of the system, collected the viewpoint of experts of the system and also use of failures bank of the past for similar systems, and a fault tree was made for incorrect performance of the system. In the quantitative calculation of fault tree analysis traditional, the likelihood of the top event calculated using exact probabilities of basic events. But often in defense system, obtaining accurate and adequate information for basic events is very difficult. On the other hand, in many studies, has been proven that fuzzy sets can be effective factor for deal with uncertainty of this problems. Hence in this paper, a hybrid approach consist of fuzzy sets and fault tree analysis is used to calculated probability of incorrect performance of the system in a fuzzy environment in the first step. In addition, fault tree structure helps to managers and designers of the system, to adopt improvement actions for elimination or reduction of the critical causes for incorrect performance of the system, that using minimal cut sets are discoverable. After applying the improvement actions on the system, in the second step, again the probability of incorrect performance of these system will be assessed using the method. The results of our assessment shows that reliability has increased to 0.7% in second step.

## کلمات کلیدی:

Fire Control System (FCS), Fuzzy Fault Tree Analysis, Navigation System

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/751628>

