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# ANALYSIS OF THE POSSIBLE ELIMINATING SPACECRAFT SYSTEMS RELIABILITY PROBLEM BY BIOMIMETIC SYSTEMS

**Abstract**

A few years after the launch of the first satellites, statistical analyzes of spacecraft reliability and failures in orbit began to appear. Unsolved reliability problems are a real factor influencing the development of spacecraft. For example, in the research work of J.H.Saleh and J.F.Castet classifies failures identified as a result of 1584 spacecraft statistical analysis, successfully launched in low-Earth orbit, between January 1990 and October 2008.The results of the analysis clearly indicate that the TTC, Gyro and Thruster subsystems are the main "culprits" of spacecraft failures, as well as the ones most required to improve reliability. One of the solutions used is the redundancy of the main, vital systems of spacecraft, which also leads to negative consequences for the spacecraft as a whole. The goal of this research is to eliminate redundant systems, which will reduce bulk and also eliminate many of the problems associated with redundant systems. Solution for the problem is proposed using biomimetic systems, so that the solution to many problems are inspired by nature. The use of micro-nanorobotics is proposed to solve reliability problems in various subsystems of spacecraft. The implementation of a swarm intelligence algorithm is being considered to improve reliability and eliminate the redundancy problem.