

X-traktor: A Rookie Robot, Simple, Yet Complex, Impeccably Designed, A Very Innovative Multidisciplinary Engineering Masterpiece

ARTHUR J. HENDERSON, JR.

Marshall Space Flight Center/ED36

Huntsville, AL 35812 USA

Phone: 256-544-2577

Fax: 256-544-5877

E-mail: arthur.henderson@msfc.nasa.gov

FIRST is the acronym of For Inspiration and Recognition of Science and Technology. FIRST is a 501.C.3 non-profit organization whose mission is to generate an interest in science and engineering among today's young adults and youth. This mission is accomplished through a robot competition held annually in the spring of each year. NASA's Marshall Space Flight Center, Education Programs Department, awarded a grant to Lee High School, the sole engineering magnet school in Huntsville, Alabama. MSFC awarded the grant in hopes of fulfilling its goal of giving back invaluable resources to its community and engineers, as well as educating tomorrow's work force in the high-tech area of science and technology.

Marshall engineers, Lee High School students and teachers, and a host of other volunteers and parents officially initiated this robot design process and competitive strategic game plan. The FIRST Robotics Competition is a national engineering contest, which immerses high school students in the exciting world of science and engineering. Teaming with engineers from government agencies, businesses, and universities enables the students to learn about the engineering profession. The students and engineers have 6 weeks to work together to brainstorm, design, procure, construct, and test their robot. The team then competes in a spirited, "no-holds barred" tournament, complete with referees, other FIRST-designed robots, cheerleaders, and time clocks.

The partnerships developed between schools, government agencies, businesses, and universities provide an exchange of resources and talent that build cooperation and expose students to new and rewarding career options. The result is a fun, exciting, and stimulating environment in which all participants discover the important connections between classroom experiences and real-world applications.

This paper will highlight the story, engineering development, and evolutionary design of X-traktor, the rookie robot, a manufacturing marvel and engineering achievement.