

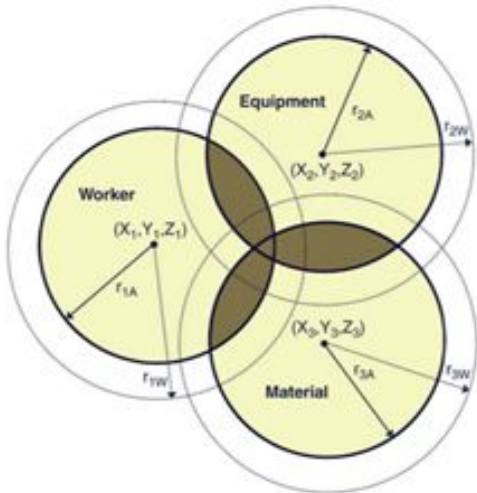
# Application of Autonomous Equipment in Heavy Civil Construction

Roman Ruffino  
California Polytechnic State University  
San Luis Obispo, California



**Key Words:** Autonomous, Equipment, Safety, Productivity, Affordability

The prevalence of autonomous vehicles in our everyday lives is continually growing. Automobile manufacturers such as Tesla have made great strides in building a car that can safely navigate the world around it and respond to sudden changes. There is great potential in the heavy civil construction industry for equipment such as bulldozers, scrapers, and transport vehicles to add another level of safety and efficiency to the worksite. The goal of this research will be to determine whether a contractor would actually apply this technology, or if it isn't practical for everyday use. This paper will examine the current state of all autonomous vehicles, the early development of autonomous construction equipment, and how they can benefit the industry. Qualitative interviews with a project engineer, project manager, and superintendent at DeSilva Gates Construction was used as a data collecting methodology. It was determined that it is most practical for autonomous equipment to work side by side with human operated equipment. As the development of these vehicles continues, there is great potential in conducting future research as to if autonomous vehicles out-perform traditional construction vehicles in various categories such as safety, productivity and affordability.



**Purpose:** To determine whether heavy civil contractors think autonomous construction equipment will be beneficial to the workplace.

**Research Methodology:** Qualitative interviews with a project engineer, project manager, and superintendent at DeSilva Gates Construction.

**Results:** Autonomous equipment will improve the efficiency of unproductive activities and reduce construction schedules. However, contractors most likely won't take on the high financial risk on an unproven method of construction.



**BUILT**  
ROBOTICS