



A VR-based training program for conveyor belt safety

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The mining industry is characterized by the need for high volume of production which has forced its adoption of large and fast moving equipment for transporting bulk material. Belt conveyors have attained a dominant position in transferring material due to such inherent advantages as their economy of operation, reliability, versatility, and practically unlimited range of capabilities. With all of these factors comes an inherent danger. From 1995 to 2007 there have been a total of 534 equipment related fatal accidents in the United States as recorded by the Mine Safety and Health Administration, 50 of which are conveyor belt related. Most accidents around belt conveyors are caused by human error, improper maintenance procedures, lack of effective training or lack of awareness of possible hazards. To counteract this high number of accidents, virtual reality (VR) is being looked at as an alternative to current safety training programs. The structure and program being proposed consists of 4 steps in creating a two phased program. This paper discusses the step by step structure of creating a safety training program for belt conveyors and the first phase of implantation of the program. The first phase includes an instructional-based phase that allows for the presentation of the information compiled for the areas of training that were determined within the structure of the program. This paper will discuss the framework used in developing the VR safety training application, the first phase of the prototype development, how the data has been retrieved and organized, and how industry feedback was gathered and used to develop the application.

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