

Image Captions and Descriptions for the **5DT Dragline Training Simulator**

Short form descriptions of the above simulator are supplied below. Image captions and image descriptions are also supplied.

Dragline Training Simulator {Technology Demonstrator}

Introduction

The 5DT Dragline Training Simulator is a technology demonstrator of a simulator that will teach the trainee dragline operator how to operate a dragline optimally.

Simulator Setup

The system will utilize an extension of the standard 5DT simulator hardware setup. The system consists of a mock-up cabin that is mounted on a motion base, in the midst of five large projection screens. The five screens provide the trainee with a wide field of view (approximately 270 degrees). This is the same out the window (OTW) view that a real operator would experience in a real dragline. The mock-up cabin is equipped with controls and instruments that mimic real controls and instruments in a dragline cabin.

Customized Motion Base

The motion base provides realistic motion cues to make the trainee feel as if he/she is operating a real dragline. For this purpose a special motion base, that can *rotate* (to simulate the characteristic swing motion of a dragline), will be configured.

Virtual Environment

The virtual dragline is operated in a photo-realistic virtual environment that emulates reality very closely. The virtual surface mine emulates a real mine. A realistic computer graphics (visual) model of the dragline was developed. This model does not only look like the real thing, but it will also sound like the real thing - real sound recordings will be used for this effect.

Material Interaction

A sophisticated material interaction model has already been developed by 5DT for the shovel and loader simulators. If material (e.g. ore or overburden) is removed from the mine, other material slides down to partly fill the empty space. This ensures realistic filling of the dipper by the trainee. This model will be optimized for dragline operation.

Performance Measurement

The instructor monitors the performance of the trainee. This is achieved by means of real-time graphs, reports and a record/playback module. The trainee is presented with a detailed, categorized report after each session. The record/playback module records the entire training session. The session can be played back for detail analysis and evaluation.

Visualization Tools

The record/playback module will also be adapted so that real inputs, from a real dragline, may be used as input for the module. This will enable managers to use this program as a visualization tool for a real dragline.

MINE_Surface_Dragline_001

Dragline: Outside View

Outside view of a dragline.

MINE_Surface_Dragline_002

Dragline: Cabin View

View from the cabin of a dragline. Note the shadow.

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