

**DROWSINESS DETECTION WITH COMPUTER VISION
FOR HEAVY EQUIPMENT HAULER**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work, and that it contains no material that has been previously published or written by another person, nor material that has been accepted for a substantial portion of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Working in the mining industry requires special attention in terms of work safety. Working in a mine carries a high risk of accidents. Heavy equipment in coal mines works continuously for a long time. Operators get tired of having to work in the same conditions every day and in the same place. As a result, operators tire easily, increasing the risk of accidents. Based on statistical data from the Ministry of Energy and Mineral Resources, the two largest work accidents came from overburden mining activities by 39% and from transportation and excavation by 22%. From hauling and digging, most of it is caused by fatigue. Efforts made by the company to reduce work accidents due to work fatigue include examination of health sheets, interviews and observations, balance tests with trails, about drug consumption. Many operators don't tell the truth about their condition, so fatigue is difficult to monitor. This fatigue results in drowsiness while driving and even falling asleep. So, in a matter of seconds, there was a work accident. In the hope of preventing accidents, a camera is placed in front of the driver with computer vision and face detection devices. Once the face is detected, the tool detects the eyes. By counting the number of blinks, the tool will decide whether the driver is sleepy or not. If the device detects a drowsy driver, an alarm will sound, hoping the driver will respond immediately to prevent an accident.

Keywords: Drowsiness detection, Computer Vision, MediaPipe Library, Neural Network, Safety in Mining.

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DEDICATION

This research is entirely devoted to my beautiful wife and children, who have been our source of inspiration and have given me courage when I thought of giving up. In addition, I made a dedicated to PT United Tractors Tbk. and UT School.

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