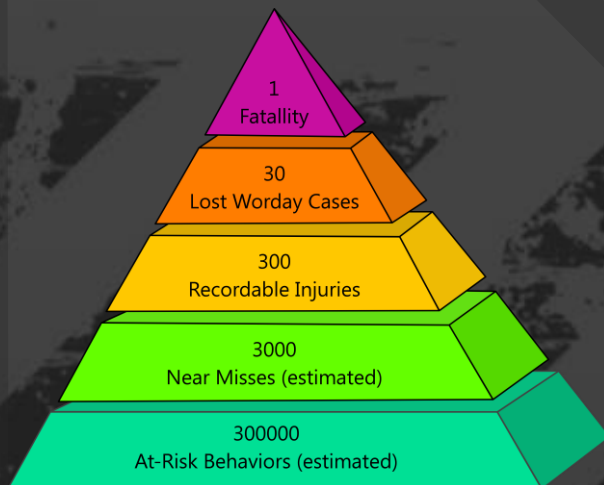


Challenge

International reports indicate that a company of 1000 workers is exposed to the costs of ~\$1.1M annually due to the safety issues and workplace injuries.

The major causes of workplace injuries are non-use of personal protective equipment and improper execution of repetitive work assignments - which prevention requires their objective and timely detection.

The current practice of manual reporting and supervision of workers has proven to be inefficient in the manufacturing industry, considering sizes and the number of workers in factories.



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AI4 Workplace Safety Project

Artificial Intelligence for Managing
Workplace Safety

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Objectives

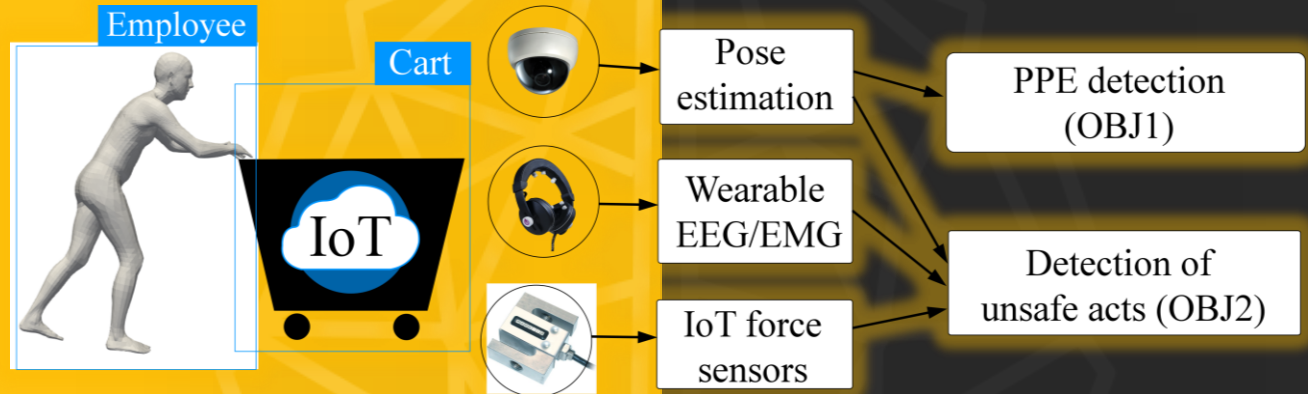


The objective is to develop algorithms for the detection of two common workplace injuries precursors: 1) non-use of personal protective equipment and 2) non-ergonomic execution of repetitive work assignments.



Approach

The proposed concept assumes development and fusion of algorithms for the pose estimation, object detection and classification with algorithms for the analysis of corresponding acting forces, EEG and EMG signals measured with wearable devices.



The hypothesis is that the assessment of both biomechanical aspects (body posture and acting forces) and cognitive state (mental workload, vigilance, cognitive fatigue) could help in preventing unsafe acts that may contribute to workplace injuries.

Outcomes

Automatic detection of injuries precursors will significantly reduce the efforts and costs of both workplace safety management and the healthcare system - while the objectivity of safety reporting will be significantly increased.

Apart from the manufacturing (which employs the majority of the labor force in Serbia), the results of the project could also find application in ergonomics, sports, healthcare, etc.

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