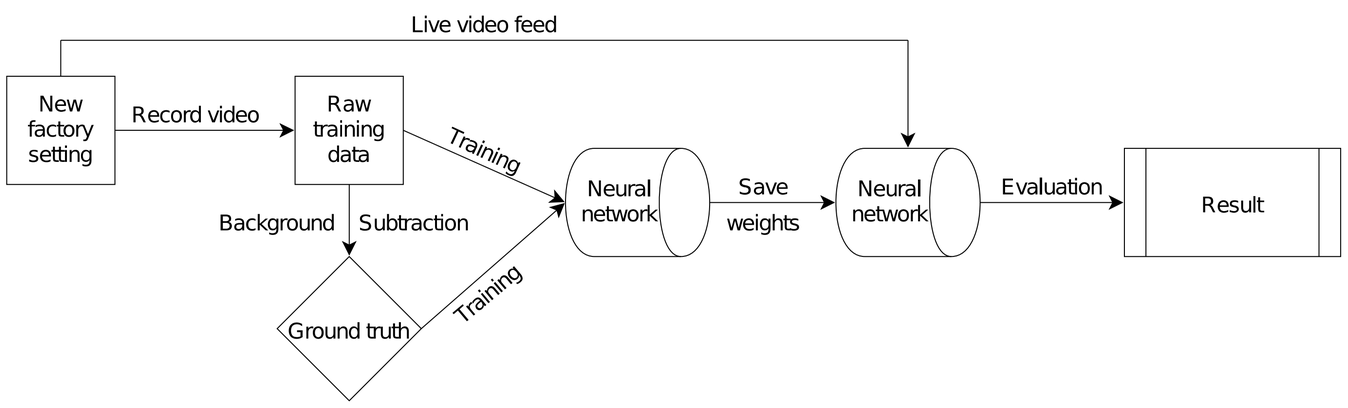
Master programme: System, Control and Mechatronics

Usable Surface Detection Using Computer Vision

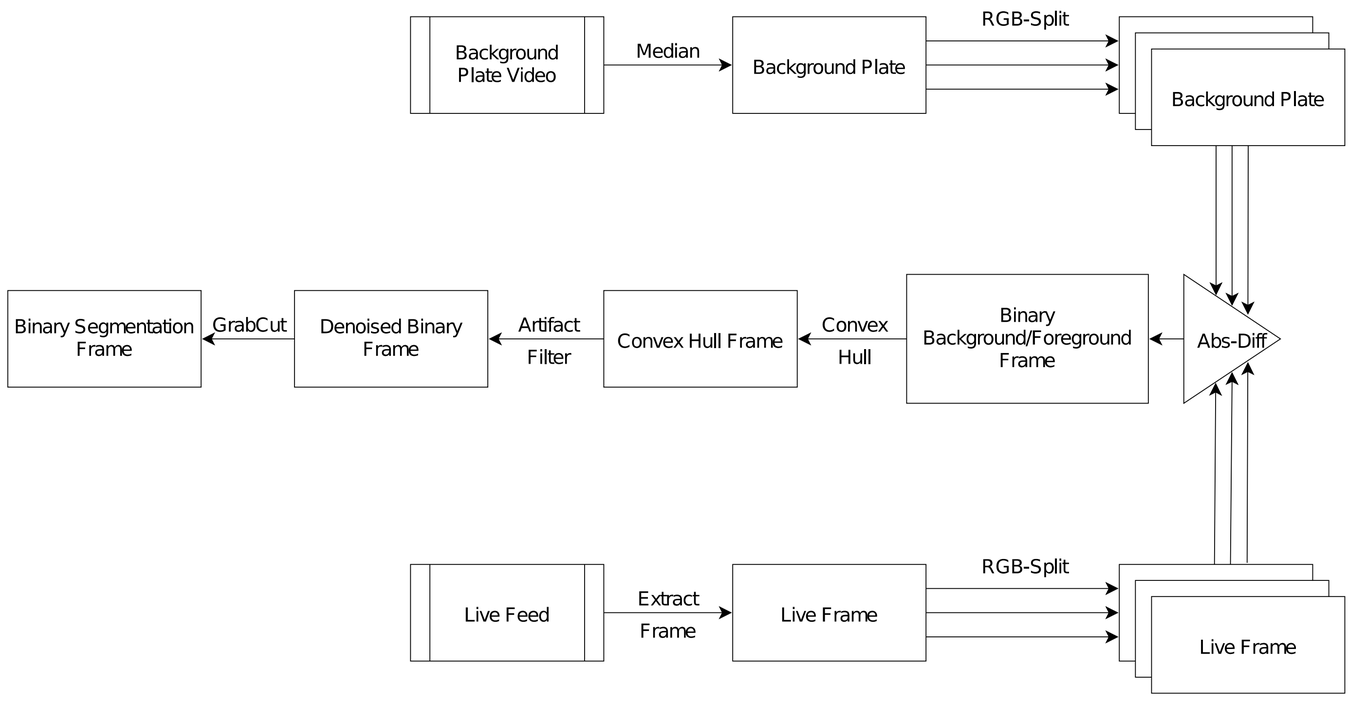
A common problem for factory environments is incorporating a flexible assembly-line workflow that does not occupy too much space on the factory floor. For these purposes autonomous vehicles could be used to supply the assembly-lines with materials, but the problem of navigating in the factory then arises.

Therefore this project aims to solve the problem of what areas of a factory floor are drivable, using a workflow consisting of background subtraction to generate a ground truth, that is then used to train a neural network. The output could potentially be used as a mapping for which a scheduler or robot control system could work upon to avoid collisions and problems with dynamic obstacles.

Full Approach



Background Subtraction



Neural Network Step-Wise Process