Discussion of Results

The results show that the proposed method is viable for workpiece localization. The alignment achieved in the simulated examples is strong as shown in the table. This is to be expected because the simulated scene contained geometric features designed in CAD.

The physical experiment shows that the approach can be applied to a welding application using physical data in a realistic environment.

The 3D LiDAR required calibration to accuratre

Further investigation is required to determine if the accuracy of the resulting workpiece localization is inside a working tolerance for a welding operation.

Conclusions