In recent years, algorithms in the area of object detection have constantly been improving. The success of these algorithms has reached a level, where much of the development is focused on increasing speed at the expense of accuracy. As a result of recent improvements in the area of deep learning and new hardware architectures optimized for deep learning models, it is possible to detect objects in an image several hundreds times per second using only embedded and mobile devices. The main objective of this thesis is to study and summarize the most important methods in the area of effective object detection and apply them to a given real-world problem. By using state-of-the-art methods, we developed a traction-by-detection algorithm, which is based on our own object detection models that track transport vehicles in real-time using embedded and mobile devices.