

## **ROBOTICS WITH NIRYO NED 2**

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### **Building a billing counter robot assistant using Niryo's Ned 2**

Extended Abstract:

Introduction:

In recent years, the advent of automation and robotics has significantly transformed various industries, including retail. The billing process and efficient handling of purchased items have always been a major aspect of customer experience in retail stores. To improve convenience and efficiency and reduce error in change calculation and lower time consumption in picking and placing shopping items, we can construct a Billing Counter Assistant Robot using Niryo's Ned 2 robot and software.

The primary objective of the Niryo NED 2 is to expedite the billing process while offering a more convenient and enjoyable shopping experience for customers. The robot integrates seamlessly with the billing systems commonly used in retail outlets, streamlining the payment procedure. Leveraging AI, the robot can process multiple items simultaneously, further reducing checkout times and alleviating long queues.

When it comes to placing items, the Ned 2 can simulate it with ease. Having multiple gripper options to pick and place items of all shapes and sizes, it can grab and place the item in the shopping bag or contained with total efficiency and almost no error whatsoever. Using the python ros wrapper package, the Ned can be enabled to detect objects on the billing counter, grab it, find a safe path to the bag and place the object, eliminating spillage, human error, and possible damage, while also improving customer satisfaction.

Another useful implementation of the robot is change calculation and delivery. Using image processing, the robot can calculate change and then pick up the amount required based on the locations of the notes/coins and give it to the customer accordingly, eliminating human calculation time, which in turn reduces time consumption and increases customer satisfaction yet again. Using the robot's electromagnet, coins can be delivered with simplicity, and using the smaller gripper or vacuum, notes can as well.

The Billing Counter Assistant Robot using Niryo's Ned 2 is a game-changing solution in retail automation. It streamlines the checkout process, reducing wait times, and enhances customer satisfaction. With its adept item-picking and bag-handling capabilities, along with accurate change calculation, the robot elevates the shopping experience. By automating repetitive tasks, it allows store employees to focus on personalised service, leading to improved productivity and profitability. The robot represents a step towards a more efficient and customer-centric retail environment.

[Github Link](#)

(We did not implement change calculation, but we have implemented delivery)