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Project title: ...i-Cashier..... Academic Year: ...2022-2023.....

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Project Type : hardware

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For our project, the main goal was to design a project that took on human tasks, if not fully then partially, to maintain an easier human life. An issue that is faced in the online shopping industry is that it requires multiple workers to scan and package items for every order placed in. Therefore, we came up with the solution of a conveyor belt that has a barcode scanner built within it that scans items without human interference and a designated 'scanned' and 'unscanned' bin belt system at its end to categorize and put the items away. This way, time is saved where items can be scanned and put away automatically and quickly without the need for a human cashier to do the labor, and the bill is computed at the same time automatically, as well. This cuts back on the number of human workers needed and the required labor for each worker, too.

The most important aspects to be covered are efficiency and accuracy of the system. The system must automatically and quickly scan items and correctly compute the bill, and then seamlessly place the items in the correct bin, ready for packaging and shipping, without the need for a human worker.

The development process will be divided into four parts:

- i. Conveyor belt: belt will be divided into sections where each one is the same area as the other that will act as designated spots for the items to be placed on, then the belt will move at a reasonable speed and by the barcode scanner, and finally will move until the just scanned item reaches the final spot to be then caught by the bin system.
- ii. Barcode scanner: the barcode scanner will scan the item as it moves by it and in turn the bill will be computed (by adding the just scanned item's price to it).
- iii. LCD display: this will display the bill, including the price of each item and the total price.
- iv. Bin system: there will be two bins, one for properly scanned items and one for not. If an item was scanned properly and had its price included in the bill, it will be placed in the first bin, ready for packaging. However, if the item wasn't scanned, it will be placed in the other bin, ready to be re-placed on the belt, or checked for being faulty by a human worker, etc. The bin system will move accordingly to have the correct bin at the end of the main conveyor belt to catch the item.



This specific project idea hasn't been done before, as far as we and our instructor know, therefore it will be a challenge for us that we're excited to take on.