INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING, KANCHEEPURAM

EX5 - Detection and locomotion of vaccine boxes on a conveyor system

Problem Statement

Vaccinator Pvt Ltd has been struggling to keep up with the increasing demand for vaccine dose production. They have found the production bottleneck is at the end of the line were the vaccine boxes are manually palletized.

The existing manual process involved separating defective vacc-boxes (fig 1) from normal vacc-boxes (fig 2) and keeping track of each boxes counts and the average production rate.

Mr Vinod, Managing Director Vaccinator Pvt Ltd, wishes to automate the process and consulted you for a solution before investing 1 million dollars for the same.

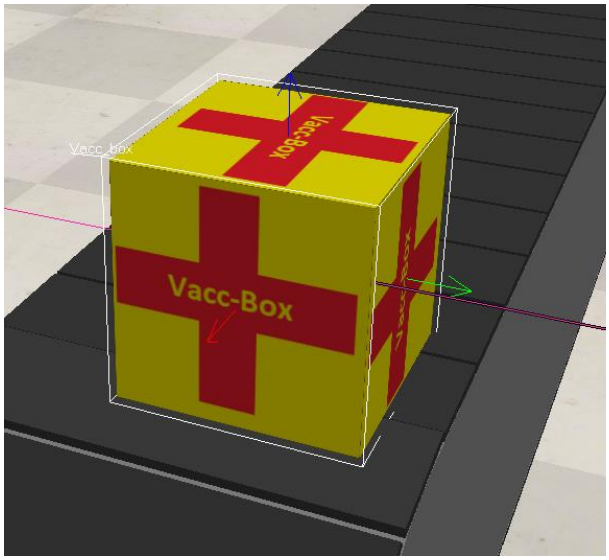

Fig 1: Vacc-Box (Defective)

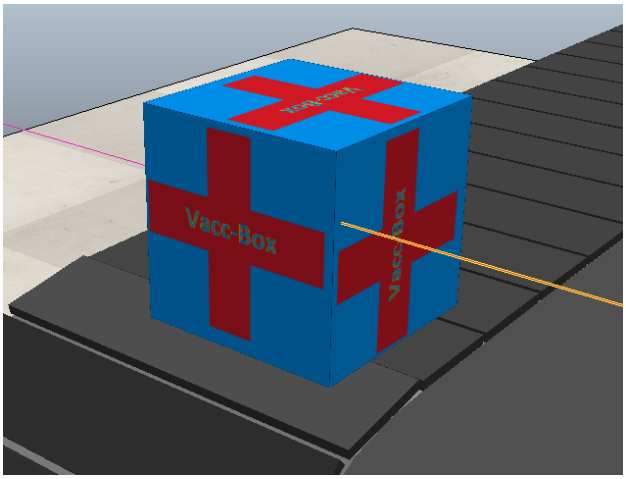

Fig 2: Vacc-Box (Normal)

You are required to do following to convince Mr Vinod

- Develop a virtual simulation model for detection and locomotion of vaccine boxes on a conveyor system
- Use suitable sensors with appropriate justification within the developed system
  [Example: Which type of proximity sensor and why]
- Show that you are able to automatically control conveyor system based on vac-box detection state
- Display production rate and number of defective and normal vac-box moved through the conveyor system
  [Example:
  vacc-box defective count= 1 | normal count= 2 | average production rate= 1 box per minute]
- It is expect you make several assumption to solve the problem statement. It is equal important to let your client know about those assumptions in the report as well as while presenting.