

Lets first define the problem statement so that we have a sense of what we are into: "We are trying to segregate 3 kinds of fruits".

Keywords: Fruits, Segregation, Automated, AI

Now lets see what has been in practice till the date

1)(<https://youtu.be/s7O5Yzmjgsg?t=114>): As said by narrator vibrating and oscillating, which means many times image recognition can be the last resort to tap onto.

Here are more non-AI segregator for inspiration purposes

([https://youtu.be/c\\_VbydFVdQw?si=-1r5hhUM5gOoK7ie](https://youtu.be/c_VbydFVdQw?si=-1r5hhUM5gOoK7ie))

But we are into the business of image recognition and we want to see such examples

2)([https://youtu.be/Bl3XzBWpZbY?si=Z\\_SoAvJ5WrxN2H\\_E](https://youtu.be/Bl3XzBWpZbY?si=Z_SoAvJ5WrxN2H_E)): This documentary is an testimony to the applicability of AI on fruit segregation but we didnt get what we wanted; a segregator,

which in this case is a human

Now we need to see something that automatically segregates using ai

3)([https://youtu.be/c\\_VbydFVdQw?si=-1r5hhUM5gOoK7ie](https://youtu.be/c_VbydFVdQw?si=-1r5hhUM5gOoK7ie)) this is one of the kind

-> I guess this device doesnt suit banana cause it cant slide as those rounded oranges

So we drop down to this 4)(<https://youtu.be/MJkEmEntoqQ?si=kNm8YRvhnd8ou2B2>) until we come up with something more feasible but as the one shown in the video seems doable it doesnt feel like to leave this beauty and search for other jargons like this one

5)(<https://youtu.be/On5WUCUNmfc?t=51>)

Lets do a final check of research papers out so we dont miss anything

([https://www.pramanaresearch.org/gallery/prj\\_c\\_a\\_47.pdf](https://www.pramanaresearch.org/gallery/prj_c_a_47.pdf)): this paper can be a nice intro into the world of conveyor belt; what it says is basically, various conveyor belt applications across various industries

Maybe people dont like to share too much of conveyor belt research or there might not be that much to research upon, I will cite some papers if you like to read

->[https://www.ijera.com/papers/Vol3\\_issue1/CL31581587.pdf](https://www.ijera.com/papers/Vol3_issue1/CL31581587.pdf)): Analysis & Prospects of Modification in Belt Conveyors - A Review

-><https://www.ijrte.org/wp-content/uploads/papers/v9i2/A2412059120.pdf>) : Design and Analysis of Inclined Belt Conveyor System for Coal Loading for Weight Reduction

Now we have seltted onto 4) till someone gets anything better it stats building lets get into the consideration which accoding to gpt are these

## 1. Material Selection

**Belt Material:** Use lightweight and durable materials like PVC or rubber, which can handle light loads while providing good friction to prevent slippage.

**Frame Material:** Consider aluminum or stainless steel for the frame, as they are lightweight and corrosion-resistant.

## 2. Belt Type

**Flat Belt:** A flat conveyor belt is suitable for transporting small, lightweight items. Ensure it has a smooth surface to reduce friction and allow easy movement.

**Modular Belt:** If flexibility is needed, a modular plastic belt can be a good option. These can be easily assembled and disassembled.

## 3. Belt Width and Length

Choose a belt width that accommodates the size of the items being transported, typically 20-30 cm for small items.

Ensure the length is appropriate for the application, considering the space available.

## 4. Drive Mechanism

**Motor Type:** A small DC motor or stepper motor can provide the necessary drive for a lightweight conveyor belt.

**Speed Control:** Implement speed control to adjust the belt's movement according to the type of load being transported.

## 5. Support Structure

Design a support structure that minimizes vibrations and maintains stability. Adjustable legs can help accommodate different heights.

## 6. Safety Features

Include guards to prevent items from falling off the sides of the conveyor.

Add emergency stop switches for safety.

## 7. Environmental Considerations

If the conveyor will be used in a specific environment (e.g., wet, dry, or dusty), choose materials that are resistant to those conditions.

## 8. Integration with Sensors

Consider adding sensors for automatic loading and unloading or for monitoring the presence of items on the conveyor belt.

## 9. Modular Design

A modular design allows for easy modifications or expansions in the future, such as increasing the load capacity or adding more sections.

## 10. Cost-Effective Solutions

If budget is a concern, look for second-hand or refurbished components, or consider DIY options using readily available materials.