Ideas

|  |  |
| --- | --- |
| Toast Butting robot | |
| Gets toast out | Butter the toast |
| 3D printing removal (for bulk parts) | |
| Picks up printed part | Paints the part |
| Juicing Robot | |
| Picks fruit (somehow cuts in half)  Dobot Linear rail | Juices the lemon  Custom robot |
|  | |
|  |  |

Project Title

1. CitrusSqueezeMaster
2. LemonLuxe Automator
3. ZestyBot
4. LemonElixir Engine
5. Squeeze-o-Matic
6. TangyTwist Automaton
7. CitroJuice Pro
8. RoboLemonade Maker
9. SourPower Squeezer
10. JuicyLemonator

Project Description

Our project will bring the ease of automation to the crafting of zesty liquids. It will utilise a Dobot Linear Rail and a Kinova Link 6 to pick up, cut and juice a lemon to create our zesty liquid. The Dobot Linear Rail will feature a 3-pronged gripper to securely hold the lemon and the Kinova Link 6 will feature a knife to cut the lemon, the Dobot will then move the lemon half to a fixed juicer, discard the husk in a container and repeat with the second lemon half. This process will repeat for a pre-determined number of lemons.

New Industrial Robot Arm you will create.

The Kinova Link 6 finds utility in our lemon juicing robot for several reasons. Firstly, its absence from the robotics toolbox signifies its unique capabilities, offering a specialised solution. With six degrees of freedom, it provides exceptional flexibility in positioning and orientation, ensuring precise lemon handling. Its impressive 1-meter radius allows the robot to access a wide range of positions around the juicing station, optimizing efficiency. The Kinova Link 6 is also sealed unit, which will prevent lemon juice from entering the robot which could cause corrosive damage to the internal electronics. Based on these attributes, the Kinova Link 6 will be the ideal industrial robot to create for this project.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | DOF | Max Reach (m) | CAD Models | Payload (kg) |
| KINOVA Link 6 | 6 | 1 m | Y | 6.0 |
| Dorna Robotics Dorna 2 | 5 | 0.5 | Y | 1 – 1.5 |
| DOOSAN M1013 | 6 | 1.3 | Y | 10 |
| Elephant Robotics myCobot 280 | 6 | 0.28 | N | 0.25 |

Existing Industrial Robot Arm

Dobot Linear Rail

DH Paratmeters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Link | d | a | Alpha | Theta |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |
| 5 |  |  |  |  |
| 6 |  |  |  |  |