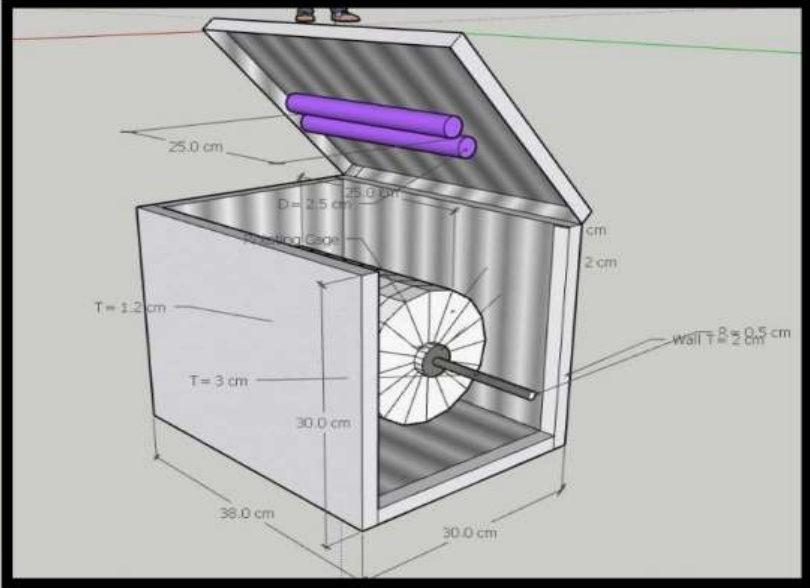




**Final Year Project Showcase Batch 2019
Year 2023**

Department: Food Engineering Programme: Food Engineering	
1	Project Idea To extend shelf life of fruits using ultraviolet treatment with retention of nutrients.
2	Process From literature review, it was found that thermal techniques can cause nutritional damage where non-thermal techniques are beneficial to retain nutrients of fruits. Therefore, to curtail the benefits of non-thermal technology, a UV treatment was used to extend shelf life harvested fruits particularly apples and peaches. Other than it consumes less energy and does not produce any harmful waste that can affect the environment.
3	Outcome *Microbiological safe food with minimum use of energy. * Nutrient retention was increased in comparison to conventional process.
4	Evidence (Theoretical Basis) The objective of this project is to increase the shelf life of peaches and apples by treating them with ultraviolet rays (UV-C). This project was done to reduce the post-harvest losses due to microbial spoilage. Different technologies includes thermal (blanching, pasteurization, and sterilization and non-thermal treatments (HPP, PEF, UV radiation, ionized radiation, etc). Among them, ultraviolet treatment is more effective with less consumption of energy and treatment time. This technique is low cost as compared to others and does not produce any waste that can affect the environment. With UV treatment, shelf life of apples and peaches extended upto 14 days in comparison to untreated samples.
5	Impact on Sustainability of Urban Regions or SDG-11 “Sustainable Cities and Communities” It can impact urban regions by providing safe food with low cost. Thereby, it can prevent outbreaks. Usually, fresh foods are sold without any treatment and pose a serious risk of food poisoning. This project can provide low cost treatment unit and thereby, can prevent possibilities of food poisoning.
6	Competitive Advantage or Unique Selling Proposition
	Attainment of any SDG (e.g. How it is achieved and why it is necessary for the region)
a	SDG#03: Good Health and Well-being: Microbiologically, safe food are good for health. This project can provide pathogen free food with retention of nutrients.
b	Environmental Aspect (e.g. carbon reduction, energy-efficient, etc) A energy efficient process with low carbon footprint.
c	Cost Reduction of Existing Product It can reduce process operating cost by more than 90 % in terms of energy consumption



d	<p>Process Improvement which Leads to Superior Product or Cost Reduction, Efficiency Improvement of the Whole Process (e.g. What is the issue in current process and what improvement you suggests)</p> <p>Currently, chemical treatment is used in addition to thermal treatment. It incurs cost in addition to reduced nutrition value. However, Ultraviolet donot have any residual waste and easier to use in comparison to conventional processes.</p>
e	<p>Expanding of Market share (e.g. how it expand and what is the problem with the current market)</p> <p>It will improve food preservation and thereby, can reduce wastage</p>
f	<p>Capture New Market (e.g. Niche market or unaddressed segment)</p> <p>Minimally processed foods with high nutrition value and low cost process</p>
g	<p>Any Other Aspect (Please tag it like above options)</p> <p>To extend shelf life of fruits.</p>
7	<p>Target Market (Industries, Groups, Individuals, Families, Students, etc) Please provide some detail about the end-user of the product, process, or service</p> <p>Fruits and Vegetables</p>
8	<p>Team Members (Names along with email address)</p> <p>Daniyal Shaheer (ahmed4202261@cloud.neduet.edu.pk) Maria Jalil (jalil4202688@cloud.neduet.edu.pk) Hira Khan (khan4205490@cloud.neduet.edu.pk) Umema Afzal (afzal4102161@cloud.neduet.edu.pk)</p>
9	<p>Supervisor Name (along with email address)</p> <p>Dr. Jawaad Ahmed Ansari (jawaadahmed@cloud.neduet.edu.pk)</p>
10	<p>Pictures (If any)</p> 
11	<p>Video (If any)</p>