



FINAL YEAR PROJECT REPORT

**AGRITECH AI SOLUTION
RIPENESS DETECTION USING COMPUTER
VISION**

**In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)**

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DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

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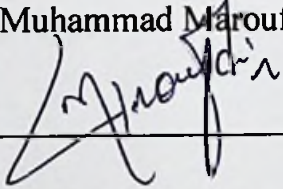
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We would like to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our project supervisor, Dr. Samreen Javed and co-supervisor Muhammad Munir Mahmood for their invaluable advice, guidance and her enormous patience throughout the development of the research.

In addition, we would also like to express our gratitude to our loving parents and friends who have helped and given us encouragement.

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AGRITECH AI SOLUTION – RIPENESS DETECTION USING COMPUTER VISION

ABSTRACT

The latest advancements in the world of computer have altered the various areas dramatically, in which agriculture is also included. It has been very important for agricultural food industry to use latest and advanced technologies. The advance technology can detect complex features, patterns and objects even from the pictures, this ability has gained essential draught into number of fields, but identification of different fruits is still complicated due to its unique shapes, colours and variety of appearances. The mango fruit is major player in Pakistan's economy, especially in agricultural food products. Considering its ripeness and variety, the industry is exposed to challenges in accurately identifying and classify its specific type, since the taste and texture of the mango is entirely based on its ripeness which is why its ripeness plays a central role in market and for buyers. To solve these hurdles, we have come up with this revolutionary approach using the YOLOv5 (You Only Look Once) structure, a modern designed object to detect the ripeness of the fruit and to further classify it. It is planned with three goals: the first one is to correctly determine mangoes into pictures. Secondly, to further classify it as ripe or unripe or other variations and lastly, to come up with an app which not only enhances these procedures but ensures a substantial development in this industry. The number of pictures included in our datasets of varied forms of mangoes in Pakistan exceeds 10,000. The structures YOLOv5, roboflow, and YOLOv8 project maturity status with precision of 95%, 92% and 90%, respectively.

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