



## Food Quality Assessment

Food safety and quality are a major concern at present. A non-destructive and fast methods are an essential factor to maintain superior food qualities with the consumer demands to maintain the quality of the life. Therefore, assessment of food quality is a major concern in today's food industry to be aware of public health concerns and customer satisfaction. Hence food research extended to different areas such as turmeric, tea, meat, oil, and fish.

- **Turmeric:** Turmeric (*Curcuma longa*) is a popular spice in traditional cuisine and now is globally available. As in the case of many widespread spices, turmeric powder is often adulterated using various additives and colorants.
- **Tea:** Black tea is known to be one of the most popular beverages enjoyed by two-thirds of the world's population. With the increasing consumption of tea, quality control of tea becomes more and more important nowadays. Sugar adulteration is one such major issue faced by the tea industry.
- **Meat:** The visual appearance, textural patterns, and colour of fresh meat are the main criteria used by the customers when choosing high-quality meat products.
- **Oil:** Coconut oil is known for its wide range of uses. To get the best profits with this high demand, some people tend to adulterate coconut oil with palm oil and repeatedly used coconut oil leading to many health issues.
- **Fish:** Fish is a staple food around the globe, and its quality is heavily dependent on freshness. Generally, visual inspection of a fish sample is the customary practice for quality assessment which is susceptible to variability in accuracy and efficiency while potentially compromising safety.
- **Water:** As a result of the increased urban population, industrial and agricultural activities, and climate change, lakes, and reservoirs experience an increase in nutrients and sediment concentration. To combat this problem, it is imperative to engineer rapid water quality screening techniques for various parameters such as pH, electrical conductivity (EC), turbidity, total sedimented solids (TSS).

## Key results :

- Through these researches, to assess turmeric, tea, and meat quality, reflectance-based nine multi-spectral images were used with wavelengths ranging from 405nm to 950nm.
- To assess the oil quality, transmittance-based nine multi-spectral images were used.
- An automated fish grading platform was developed using RGB captured from a smartphone camera.

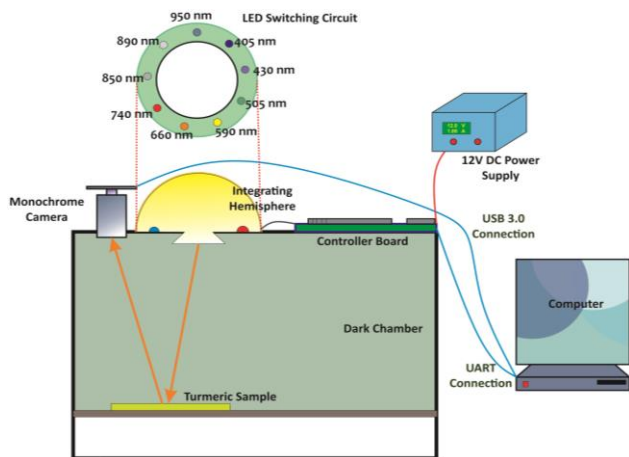


Fig. Apparatus for the imaging system in the reflectance configuration

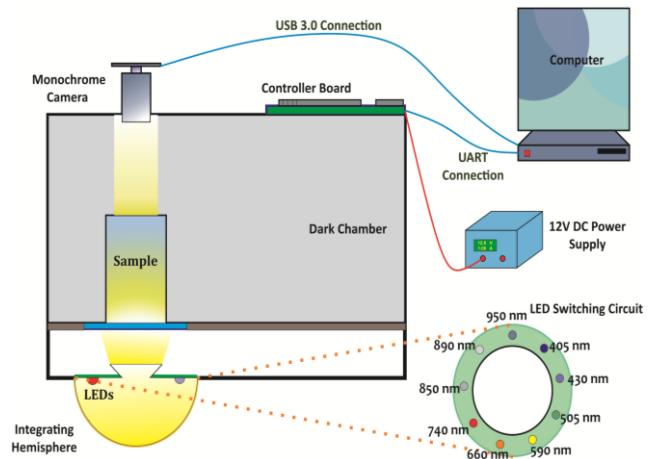


Fig. Apparatus for the imaging system in the transmittance configuration

## Outcomes :

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## Research team :

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