Review of Related Literature

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Chapter 1

Review of Related Literature

1.1 Related Literature

This section of the chapter presents related literature that is considered essential for the development of this special problem.

1.1.1 Deep Learning

Kelleher (2019) states that deep learning is inclined on making large-scale neural networks geared towards creating data-driven decisions. Furthermore, it was also argued that deep learning is oriented towards large-scale, complex data.

1.1.2 YOLOv5

According to Solawetz (2024), YOLOv5 is a model from a family of computer vision models used for object detection. YOLOv5 is reported to perform comparably to state-of-the-art techniques. It is designed to extract features from raw input images, used primarily in training object detection models alongside various data augmentation techniques.

1.1.3 Image and Video Processing

Kumar (2024) defines image processing as a process of turning an image into its digital form and extracting data from it through certain functions and operations. Usual processes are considered to treat images as 2D signals wherein different processing methods utilize these signals. Like image processing, Riches Resources (2020) defines video processing as being able to extract information and data from video footage through signal processing methods. However, in video processing, due to the diversity of video formats, compression and decompression methods

are often expected to be performed on videos before processing methods to either increase or decrease bitrate.

1.2 Related Studies

This section of the chapter presents related studies conducted by other researchers wherein the methodology and technologies used may serve as basis in the development of this special problem.

1.2.1 Automated Detection and Classification of Road Anomalies in VANET Using Deep Learning

In the study of Bibi et al. (2021)...

1.2.2 Smartphones as Sensors for Road Surface Monitoring

In their study, Chapman, Li, and Sattar (2018)...

1.3 Chapter Summary

The following table provides a comparison between related studies and their research gaps:

Table 1.1: Comparison of Studies on Technology for Traceability and Supply Chain

Study	**Technology Used**	**Focus Area**	**Key Findings**	**Limitations**
Shamsuzzoha et al. (2023)	Blockchain (hybrid model)	Traceability	Demonstrated feasibility for traceability, certification, and buyer-seller acceptance.	Connectivity issu usability challeng and limited adopt incentives.
Cocco & Manzardo (2021)	Blockchain, IoT (RFID, IPFS, NFC, Ethereum)	Italian agri-food traceability system	Proposed a novel blockchain-IoT solution for traceability and transparency.	High complex multiple technolog (RFID, IPFS, NFC
Kresna et al. (2017)	IT-based system (RFID, CCTV, GPS)	Digital traceability system (IT-based)	Identified weaknesses in traditional paper-based IT traceability systems.	Relied on spec technologies (CCT GPS, RFID); integrated w blockchain.
Tiwari (2020)	Blockchain, smart contracts, SMS	Tuna tracking certification	Enhanced transparency and addressed issues like IUU fishing.	Limited to spec regions and sup chains.
Tiwari (2020)	Blockchain, IBM Food Trust, GTIN/UPC identifiers	Food supply chain	Real-time tracking enabled recalls and provided insights.	Focused on gene food products; h dependency on I ecosystem.