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**e-Book of Extended Abstract
Negeri Sembilan International (NSIEx) & Research Symposium
2025**

PST014 - A FRAMEWORK OF NATIONAL MONITORING AND REPORTING SYSTEM TO PREVENT UNAUTHORIZED RON95 PURCHASES

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ABSTRACT

The Malaysian government allocates significant subsidies to maintain the affordability of RON95 fuel for its citizens. However, increasing incidents of foreign-registered vehicles purchasing RON95 have raised concerns regarding subsidy leakage and policy inefficiency. The absence of real-time monitoring and public reporting mechanisms further hampers efforts to control these violations. This innovation outlines the framework of the development and implementation of a community-based digital monitoring system, *RON95 Watch*, which empowers citizens to report violations in real-time. The framework is used to propose a mobile platform for monitoring and reporting unauthorized purchases of RON95 by foreigners. This system is hoped to enhance transparency and accountability in the distribution of fuel subsidies. The system will utilize a mobile application, artificial intelligence (AI)-powered license plate recognition, and direct integration with enforcement agencies to ensure timely intervention. The implementation will be divided into three phases: the development and pilot testing, the nationwide rollout, and the integration and policy support. The novelty of the *RON95 Watch* lies in its integrated, citizen-centric approach to subsidy enforcement. The initiative aims to protect national interests, promote fairness, and enhance the effectiveness of fuel subsidy enforcement. Even though this is a framework of the real system, the idea of the monitoring system for the prevention of unauthorized RON95 purchases is a small step to a bigger implementation.

Keywords – RON95, artificial intelligent, RON95 Watch

INTRODUCTION

In 2024, the Ministry of Finance of Malaysia reported almost MYR 20 billion in subsidies for RON95 petrol, which is exclusively available to citizens, as regulations prohibit sales to foreign nationals and foreign-registered vehicles (BERNAMA, 2025). However, weak enforcement at petrol stations, especially in border towns like Johor Bahru and Bukit Kayu Hitam, has allowed foreign-registered vehicles to disregard government regulations by purchasing subsidized petrol. Some citizens also exploit the fuel subsidy scheme by reselling the subsidized petrol to non-citizens for personal gain (Ismail et al., 2024). Such activities deplete public funds, distort market prices, and undermine the effectiveness of national fuel policies. The lack of real-time monitoring and public reporting mechanisms

hinders efforts to control these real-time monitoring and public reporting mechanisms hinders efforts to control these violations, highlighting the need for a technology-driven enforcement solution.

The government's initiatives, such as MyKad and e-wallet verification, establish a connection between purchases and citizens' identities; however, they encounter several operational challenges. These include ambiguous procedures, financial strain on station operators, and potential risks related to data misuse (Thomas, 2004). The proposed *RON95 Watch* system incorporates a mobile application, AI-powered license plate recognition, and real-time citizen reporting directly linked to enforcement agencies. This integrated approach aims to close enforcement gaps, curb cross-border smuggling, safeguard public funds, and ensure subsidies reach their intended recipients.

OBJECTIVE

This is a proposal and the objectives are:

- i. To develop a mobile platform for monitoring and reporting unauthorized purchases of RON95 by foreigners.
- ii. To involve Malaysian citizens in enforcing compliance through photographic reporting and geolocation tagging.
- iii. To assist enforcement agencies in identifying and acting against violators efficiently.
- iv. To enhance transparency and accountability in the distribution of fuel subsidies.

THE FRAMEWORK OF THE PROPOSED SOLUTION BY *RON95 WATCH*

This innovation proposes a framework for a system called *RON95 Watch*. The *RON95 Watch* is a digital solution that will integrate the web and AI throughout Malaysia. Below are the details of the framework.

RON95 Watch comprises:

- Mobile and web applications for public reporting.
- AI-based license plate recognition and database cross-referencing.
- Administrative dashboard for government use to track, verify, and respond to reports.

Key Features:

- **User Reporting Interface:** Users can snap and upload a photo of the suspected violation (e.g., a vehicle with foreign plates refuelling with RON95), with location and time automatically recorded.
- **AI Verification System:** Image recognition software will identify vehicle plates and match them with transport databases to confirm foreign registration.
- **Alert Mechanism:** Valid reports will trigger alerts to enforcement agencies for follow-up action.
- **Data Analytics:** Aggregated data for identifying hotspot locations and recurring offenders.

Methodology and Implementation Plan:

Phase 1: The Development and Pilot Testing (0–3 Months)

- Build a minimum viable product (MVP) of the app and web system.
- Conduct pilot tests in border areas: Johor Bahru, Padang Besar, and Bukit Kayu Hitam.
- Collect user feedback for refinement.

Phase 2: Nationwide Rollout (4–9 Months)

- Launch official mobile and web app nationwide.
- Partner with the Ministry of Domestic Trade and media agencies for public awareness campaigns.
- Provide petrol station operators with system guidance.

Phase 3: Integration & Policy Support (10–12 Months)

- Collaborate with agencies for enforcement (Ministry of Domestic Trade, Customs, Royal Malaysia Police).
- Regular data reporting to support policy reviews.
- Update features and expand system capacity based on usage trends.

NOVELTY

The novelty of the *RON95 Watch* lies in its integrated, citizen-centric approach to subsidy enforcement, featuring:

- **Community Empowerment:** Unlike traditional top-down enforcement, this system engages the public directly as active monitors of policy violations through a user-friendly mobile platform.
- **AI-Powered License Plate Recognition (LPR):** The use of AI for automatic detection of foreign-registered vehicles at fuel stations is a new application in the context of subsidy control in Malaysia.
- **Real-Time Enforcement Linkage:** Instant data sharing with relevant authorities enables swift intervention, setting it apart from delayed or manual reporting systems.

CONCLUSION

This framework is one of the early steps to plan for the prevention of the misuse of the RON95. The expected impact for this system will be the reduction in unauthorized RON95 fuel purchases by foreign nationals. This proposal outlines a monitoring system that aligns with Malaysia's commitment to good governance, fiscal discipline, and public empowerment. Furthermore, it will increase the public's involvement and shared responsibility in protecting national resources, provide more accurate data for policymaking on fuel subsidies and border control and improve trust in enforcement and transparency mechanisms. The misuse of subsidized RON95 by foreign entities is a national issue that demands immediate, intelligent, and inclusive action. Through *RON95 Watch*, the government can leverage citizen participation and digital technology to ensure fair usage, curb abuse, and safeguard public funds.

REFERENCES

- BERNAMA. (2025, July 23). RON95 price lowered to RM1.99 per litre after targeted subsidy, People will not be affected - PM Anwar. <https://www.bernama.com/en/news.php?id=2448264>
- Ismail, S., Lim, F. P., Lau, G. C., & Yow, K. S. (2024). A flexible model for fuel subsidy reform in Malaysia. *ASM Science Journal*, 19, 1–7.
- Thomas, M. (2004). Is Malaysia's MyKad the "one card to rule them all"? The urgent need to develop a proper legal framework for the protection of personal information in Malaysia. *Melbourne University Law Review*, 28(2), 474–511.