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Click2Serve: Kiosk and Online Platform for Municipal Service Request in Alaminos City

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Abstract- *In the era of digital transformation, local governments are increasingly challenged to modernize service delivery systems to meet the evolving needs of citizens. This capstone project, Click2Serve: Kiosk and Online Platform for Municipal Service Requests in Alaminos City, addresses the inefficiencies of traditional paper-based municipal service delivery by integrating digital technologies into local governance. The study profiles the ICT infrastructure of municipal departments, examines existing processes, and identifies user requirements to design a centralized system focused initially on the Civil Registry Office. Using the Rapid Application Development (RAD) methodology, the project developed a kiosk and web-based platform equipped with features such as service request tracking, interactive navigation, chatbot assistance, and queuing systems. Usability was evaluated through the Software Usability Measurement Inventory (SUMI), assessing efficiency, affect, helpfulness, control, and learnability. Results demonstrate that Click2Serve enhances accessibility, reduces waiting times, and improves transparency, thereby strengthening citizen engagement and trust in local government. While current limitations include the absence of online payment integration and restricted departmental coverage, the system provides a scalable foundation for future expansion across municipal offices. This project contributes to the advancement of e-governance in Alaminos City, aligning with national smart city initiatives and global best practices in digital public service delivery.*

Keywords*- e-governance, kiosk system, web-based platform, chatbot assistance.*

INTRODUCTION

Governance is the framework of values, policies, and institutions through which a society organizes and manages its political, economic, and social affairs, involving collaboration among government, civil society, and the private sector (United Nations Development Programmer, 2025). Traditionally, governance relied heavily on face-to-face interactions and paper-based processes, especially in municipal service delivery, where residents and businesses physically visit government offices to submit applications, pay fees, and request assistance. This conventional mode often results in long queues, delays, and inefficiencies, particularly when government offices face limited staffing or procedural complexities.

In the digital era, governance is evolving through the integration of information and communication technologies (ICT), giving rise to e-governance. E-governance refers to the use of digital tools to improve access to government services, enhance transparency, and foster greater citizen participation in decision-making (Pandey & Risal, 2022). By leveraging online platforms, mobile applications, and self-service kiosks, e-governance transforms government-citizen interactions, allowing services to be accessed anytime and anywhere, significantly reducing time, cost, and complexity compared to traditional methods (Indama, 2023). Globally, countries such as Denmark, Estonia, Singapore, South Korea, and Iceland have become leaders in e-governance, achieving high levels of digital

public service maturity and strengthening trust between governments and their citizens (Kash, 2024; United Nations E-Government Survey, 2024).

In the Philippines, e-governance adoption is accelerating, with over 1,200 local government units (LGUs) implementing digital tools to streamline public service delivery (Sarao, 2025). Programs like the Electronic Business One-Stop Shop (eBOSS) and the Department of Science and Technology's Smart Cities and Communities Program exemplify the national push toward faster, more efficient, and accessible government services (Marcelo, 2023). A recent Department of the Interior and Local Government (DILG) and World Bank survey revealed that 70% of urban LGUs are planning smart city initiatives, with more than half already implementing projects and policies to support them (Antos & Zhou, 2024). These smart city efforts employ data and technology to improve urban living, focusing on sustainable planning, efficient service delivery, and citizen-centered governance (World Bank, 2024.). For instance, a study in Quezon City demonstrated that digitizing business permits and licenses markedly improved user satisfaction and service efficiency (Alindajao et al., 2023).

Despite these national efforts, many Philippine cities, including Alaminos City, Pangasinan, continue to rely heavily on manual, paper-based municipal service processes. Residents and visitors typically transact by physically visiting government offices, filling out forms, and waiting in queues, which can be time-consuming and frustrating. First-time applicants and tourists often lack clear guidance on requirements, leading to incomplete applications and multiple trips. Such inefficiencies reduce productivity and satisfaction. To address these challenges, Alaminos City is embracing digital transformation as part of its smart city vision. The city has partnered with the Department of Science and Technology Region 1 and Pangasinan State University to implement the Smart and Sustainable Communities Program, integrating advanced technologies and data-driven solutions to improve governance and quality of life (PSU-DOST MOU, 2024). Moreover, Alaminos has adopted the Paleng-QR Ph Plus program, a national initiative promoting digital payments in public markets, public utility vehicles, and business establishments. This program, led by the Bangko Sentral ng Pilipinas (BSP) and DILG, encourages the use of QR code technology to facilitate safe, convenient, and efficient transactions, boosting financial inclusion and supporting the country's digital economy goals (Manila Standard, 2023; OpenGovAsia, 2024). Nearly 700 market vendors and over 3,600 tricycle drivers in Alaminos have joined the program, supported by local ordinances promoting digital payments.

Further bridging the digital divide, e-centres have been established in barangays to provide residents with access to online government services, digital literacy training, and assistance in using digital platforms (OpenGovAsia, 2023). These centers enable marginalized populations to participate in the digital economy and access government benefits without the need to travel to city offices.

Research indicates that self-service kiosks and chatbot-guided platforms can reduce administrative burdens, expedite processing times, and increase efficiency by up to 40% compared to traditional methods (Smith et al., 2019; Nguyen & Tran, 2020). In line with these findings, the system for Alaminos City integrates web-based and kiosk-based service requests, chatbot assistance, and interactive navigation to modernize municipal service delivery. By providing clear, step-by-step guidance, reducing waiting times, and enhancing transparency, Click2Serve aims to improve citizen engagement and support Alaminos transition toward smart governance. This initiative aligns with national priorities and global best practices in e-governance, positioning Alaminos City as a progressive, technology-driven urban center committed to efficient, inclusive, and responsive service delivery for residents and visitors

MATERIALS AND METHOD

The researchers utilized both descriptive and developmental research approaches to design, develop,

and evaluating the Click2Serve kiosk and web platform for city services in Alaminos City.

The study used descriptive research methods and developmental research approaches. The descriptive method involved conducting interviews and surveys to gather detailed information. A key initial phase involved the comprehensive profiling of municipal department offices responsible for service delivery. This profiling documented the organizational structure, functions, services, and workflows of departments such as the Civil Registry, Business Permit and Licensing Office, Engineering Office, City Transportation Regulation Unit, Veterinary Office, and Information Desk. The profiling provided a clear understanding of current service delivery practices and challenges, ensuring the Click2Serve platform aligned with the actual needs and operations of these offices. This user feedback helped identify community expectations and usability issues, guiding the initial design of the kiosk interface and functionalities.

Building on these insights, the project adopted a developmental research approach characterized by iterative cycles of design, prototyping, testing, and evaluation. This allowed continuous refinement of the Click2Serve platform based on user input and usability testing, ensuring a user-friendly and effective system that adapted to evolving community needs.

To manage development efficiently, the project followed the Rapid Application Development (RAD) methodology. RAD emphasized rapid prototyping, active user involvement, and iterative feedback through four phases: (a) Requirements Planning, (b) User Design, (c) Construction, and (d) Cutover. This approach enabled faster delivery of functional system components and flexibility in incorporating user feedback.

By integrating municipal profiling, descriptive and developmental research, and the RAD methodology, this project ensured the Click2Serve platform is grounded in accurate, context-specific data and refined through continuous user engagement. The result was an accessible, efficient, and user-centered city service system tailored to the needs of Alaminos City's residents, tourists, and local government employees.

Requirements Planning. In this phase, the researchers gathered the initial requirements for the Click2Serve system. This included identifying core functionalities such as providing directions, maps, and basic tourist information. Stakeholder input was essential to determine the necessary features and hardware specifications, ensuring that the system aligned with user needs from the outset.

User Design. During this stage, the researchers collaborated closely with potential users to design the Click2Serve interface and functionalities. Through iterative prototyping, continuous feedback was collected to refine the system's design. This collaborative approach ensured the kiosk remained user-friendly, intuitive, and aligned with user expectations.

Construction. In this phase, the development team built the Click2Serve system based on the approved designs and prototypes. Construction involved both hardware setup (including touchscreen installation and network configuration) and software development (such as tourist information modules, map integration, and navigation features). The team utilized modular and reusable components to accelerate the development process.

Cutover. The final phase included comprehensive system testing, user training, and implementation. The Click2Serve platform underwent thorough testing for functionality, usability, and reliability before official deployment. Upon successful validation, the kiosk was launched for public use, accompanied by proper documentation and maintenance plans.

RESULTS AND DISCUSSION

The development of Click2Serve successfully addressed the challenges experienced by residents and visitors when accessing municipal services in Alaminos City. Traditional paper-based processes often resulted

in long waiting times, lack of information regarding requirements, and multiple visits to government offices. Through the implementation of Click2Serve, citizens can conveniently access municipal information, request services, track applications, and navigate government offices using a centralized kiosk and online platform.

The developed system provides a user-friendly and accessible platform that improves transparency, service efficiency, and citizen engagement. The following section presents the visual interfaces of Click2Serve followed by a discussion of its usability and effectiveness.

A. SYSTEM INTERFACE

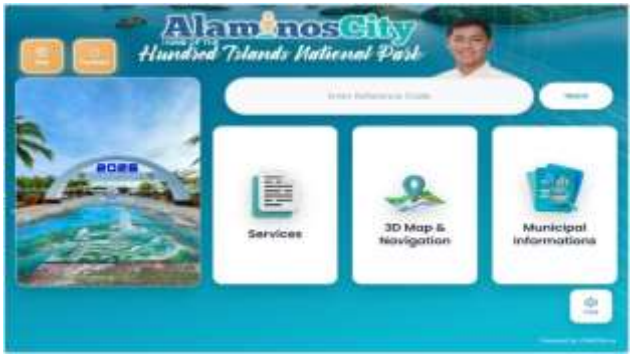

Figure 1. Click2Serve Kiosk Home Screen

The Click2Serve Kiosk Home Screen serves as the main entry point of the system. It provides users with easy access to municipal services, service tracking, chatbot assistance, municipal information, and navigation features. The interface was designed to be simple and user-friendly to accommodate users with varying levels of digital literacy.

Figure *2*. Click2Serve Kiosk Service Screen

The Service Screen allows users to browse available municipal services offered by the City Government of Alaminos. Users can view service descriptions, requirements, processing steps, and estimated processing times before submitting requests.

Figure 3. Click2Serve 3D Map Screen

The 3D Interactive Map assists residents and visitors in locating government offices and important facilities within Alaminos City. The feature improves navigation and reduces confusion among first-time visitors seeking municipal services.

Figure 4. Click2Serve Municipal Information Screen

The Municipal Information Screen provides information about Alaminos City including government offices, elected officials, tourist attractions, city history, and public announcements. This feature serves as an information hub for residents and visitors.

Figure 5. Click2Serve Service Tracker Screen

The Service Tracker allows users to monitor the status of their service requests using a unique reference code generated upon submission. This feature promotes transparency by providing real-time updates regarding application progress.

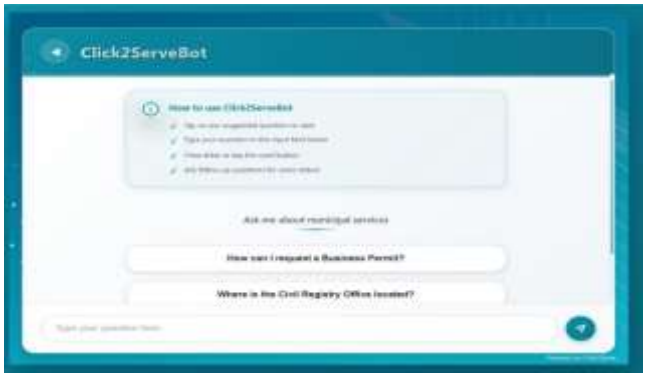

Figure 6. Click2Serve Chatbot Screen

The Chatbot Assistance feature provides instant responses to frequently asked questions and guides users through service requirements and procedures. This reduces the workload of government personnel while improving citizen support.

Figure 7. Click2Serve Website Home Screen

The web-based platform allows users to access municipal services remotely using mobile devices and computers. It provides the same functionalities available in the kiosk version, increasing accessibility and convenience.

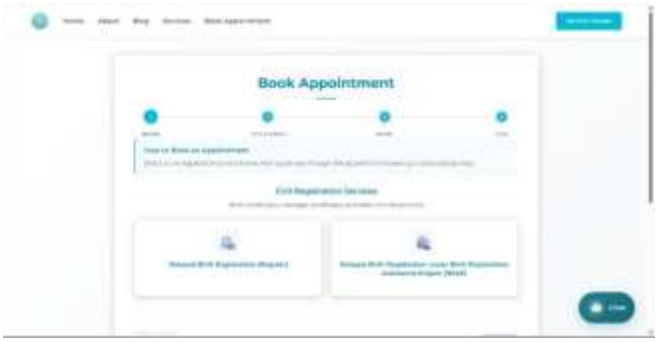

Figure 8. Booking Appointment Screen

The Appointment Booking feature enables users to schedule visits to the Civil Registry Office. This helps reduce overcrowding and waiting times by distributing appointments efficiently.

Figure 9. Online Service Tracker Screen

This screen enables users to check application progress remotely. Users can enter their reference code to receive updates regarding their submitted requests.

Figure 10. Online Chatbot Screen

The Online Chatbot provides assistance through the website and helps users obtain information without physically visiting City Hall.

Figure 11. Officer Dashboard

The Officer Dashboard allows authorized personnel to manage service requests, update application statuses, and communicate with applicants. This dashboard streamlines internal operations and improves service monitoring.

Figure 12. Super Admin Dashboard

The Super Admin Dashboard provides complete administrative control over the system. It allows management of users, services, content updates, reports, and system configurations.

B. USABILITY EVALUATION OF CLICK2SERVE

To evaluate the usability of Click2Serve, the Software Usability Measurement Inventory (SUMI) questionnaire was administered to respondents composed of residents, municipal employees, and system users.

The usability evaluation focused on five dimensions:

- Efficiency
- Affect
- Helpfulness
- Control
- Learnability

The results indicate that respondents found the system highly usable and effective in assisting municipal transactions.

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Table 1. Usability Testing Result in Terms of Efficiency

Usability Question	Mean	Rank	Equivalent Rating	Capabilities
1. The system 3D map is responsive.	4.00	1st	Strongly Agree	Usable
2. The system is consistent.	3.97	2nd	Strongly Agree	Usable
3. The system is a great help in finding local agencies I want to reach.	3.94	5th	Strongly Agree	Usable
4. The system is a great help in requesting services.	3.97	3rd	Strongly Agree	Usable
5. The system AI chatbot is quick to respond.	3.75	8th	Strongly Agree	Usable
6. The system is great help in gathering information about the city.	3.97	4th	Strongly Agree	Usable
7. It is obvious that the user needs have been taken into consideration.	3.88	7th	Strongly Agree	Usable
8. It is easy to make the system do exactly what you want to do.	3.94	6th	Strongly Agree	Usable
Overall Mean	3.93	—	Strongly Agree	Usable

The respondents rated Click2Serve highly in terms of efficiency. The system enabled users to accomplish tasks faster compared to traditional municipal service procedures. Features such as appointment booking, service tracking, and digital forms significantly reduced processing time and minimized unnecessary visits to government offices.

Table 2. Usability Testing Result in Terms of Affect

Usability Question	Mean	Rank	Descriptive Equivalent Rating	Descriptive Capabilities
1. I know what to do with this system.	3.81	7th	Strongly Agree	Usable
2. I would like to utilize the system every time.	3.94	3rd	Strongly Agree	Usable
3. I would recommend the system to the residents of Alaminos City and to tourist.	3.97	1st	Strongly Agree	Usable
4. The system is easy to use and navigate.	3.91	4th	Strongly Agree	Usable
5. The system helped me with the overall municipal service requesting process.	3.88	6th	Strongly Agree	Usable
6. Using the system is satisfying.	3.91	5th	Strongly Agree	Usable
7. Using the system is not frustrating.	3.97	2nd	Strongly Agree	Usable
Overall Mean	3.91	—	Strongly Agree	Usable

The respondents expressed positive feelings while using the system. The interface design, accessibility, and convenience provided a satisfactory user experience. Most users indicated that they would willingly use the system again for future municipal transactions.

Table 3. Usability Testing Result in Terms of Helpfulness

Usability Question	Mean	Rank	Descriptive Equivalent Rating	Descriptive Capabilities
1. I find the system's instructions helpful.	3.81	4th	Strongly Agree	Usable
2. I find that the information provided in the system is clear and understandable	3.81	5th	Strongly Agree	Usable
3. Error prevention messages are adequate during service requests.	3.72	6th	Strongly Agree	Usable
4. There is enough information on the screen when it is needed.	3.84	3rd	Strongly Agree	Usable
5. I never felt quite tense using the system.	3.97	1st	Strongly Agree	Usable
6. This system didn't give me headache	3.97	2nd	Strongly Agree	Usable
Overall Mean	3.85	—	Strongly Agree	Usable

The chatbot assistance, service guides, and requirement checklists were found to be highly helpful. These features enabled users to understand service procedures clearly and reduced confusion regarding application requirements.

Table 4. Usability Testing Result in Terms of Control

Usability Question	Mean	Rank	Descriptive Equivalent Rating	Descriptive Capabilities
1. I can easily navigate and control the system to access the services I need.	3.88	3rd	Strongly Agree	Usable
2. The systems provide clear guidance, and I can control my interactions to ensure my request is submitted correctly.	3.75	6th	Strongly Agree	Usable
3. I have full control over the actions I take when using the system.	3.91	2nd	Strongly Agree	Usable
4. This system didn't stop unexpectedly under different conditions.	3.69	7th	Strongly Agree	Usable
5. I understand and can act on information provided by the system.	3.94	1st	Strongly Agree	Usable
6. The systems allows me to proceed at my own phase.	3.78	5th	Strongly Agree	Usable
7. I have ease in using all the system offers.	3.84	4th	Strongly Agree	Usable

Respondents reported that they felt in control while navigating the system. The interface was predictable, and users could easily move between screens without difficulty. Error messages and navigation options also contributed to a positive user experience.

Table 5. Usability Testing Result in Terms of Learnability

Usability Question	Mean	Rank	Descriptive Equivalent Rating	Descriptive Capabilities
1. Learning the system's environment is easy.	3.94	1st	Strongly Agree	Usable
2. It is easy to learn the command and functions.	3.91	3rd	Strongly Agree	Usable
3. I quickly learned how to use the system.	3.75	7th	Strongly Agree	Usable
4. I easily understand the rules and guidelines when using the system.	3.78	6th	Strongly Agree	Usable
5. I do not need help while using the system.	3.84	4th	Strongly Agree	Usable
6. It was easy for me to figure out how to complete task on the system.	3.81	5th	Strongly Agree	Usable
7. The system's design makes it easy to learn how to interact with it.	3.94	2nd	Strongly Agree	Usable
Overall Mean	3.85	—	Strongly Agree	Usable

The system was found easy to learn even for first-time users. Respondents were able to understand how to use the kiosk and website with minimal guidance. This demonstrates that Click2Serve is suitable for users with varying levels of technical knowledge.

Table 6. Overall SUMI Result

Dimension	Mean	Descriptive Equivalent Rating	Descriptive Capabilities
Efficiency	3.93	Strongly Agree	Usable
Affect	3.91	Strongly Agree	Usable
Helpfulness	3.85	Strongly Agree	Usable
Control	3.83	Strongly Agree	Usable
Learnability	3.85	Strongly Agree	Usable
Overall Mean	3.87	Strongly Agree	Usable

The overall SUMI evaluation revealed that Click2Serve achieved a high level of usability. Respondents agreed that the system is efficient, easy to use, helpful, and effective in improving municipal service delivery. The findings indicate that Click2Serve can serve as a valuable digital platform for enhancing citizen engagement and supporting Alaminos City's Smart City initiatives.

Overall, the development of Click2Serve successfully met the objectives of the study. The system addressed existing challenges in municipal service delivery by providing a centralized kiosk and online platform for service requests, appointment scheduling, tracking, and information dissemination. The usability evaluation results demonstrated that the system is highly acceptable to users and has the potential to improve efficiency, transparency, accessibility, and citizen satisfaction in Alaminos City.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn:

1. The ICT capability of municipal departments is generally adequate but unevenly distributed. While major administrative offices have modern computers and stable connections, several offices lack essential equipment and ICT manpower. This indicates that ICT equipment should be improved to better support digital platform use. Similar findings were reported in Agapen (2024), where officials and

functionaries faced persistent challenges such as low internet connectivity, outdated hardware and software, and limited access to technological resources. These barriers not only disrupt training delivery but also hinder the effective adoption of e-governance initiatives.

2. The existing service processes are operational but slow and prone to inefficiencies, particularly due to incomplete documents from the clients, manual tracking, and limited communication channels. These issues contribute to longer wait times, inconsistent workflows, and communication challenges. Matildo (2022) likewise found that local officials in Marihatag, Surigao del Sur encountered significant problems in implementing basic service delivery, with lack of community participation emerging as the top challenge, underscoring the persistence of inefficiencies in local government processes.
3. The user requirements identified indicate a strong need for a centralized, secure, and accessible service request platform. Respondents emphasized functionality that promotes convenience, transparency, and digital accessibility all of which informed the system design. Valle et al. (2024) confirmed that e government technologies in Caloocan LGUs enhanced transparency, convenience, and accessibility, noting high citizen satisfaction with the platform's design and trust in its security features. Their findings suggest that continued improvements in support and communication could further strengthen citizen confidence and participation in digital governance.
4. The RAD methodology proved highly effective in facilitating user-centered development through iterative prototyping, continuous feedback, and rapid refinement. This ensured that the system reflected actual municipal workflows and end-user expectations. Supporting evidence from Riadi, Yudhana, and Elvina (2024) shows that applying RAD in an online student registration system achieved a 100% success rate across architectural features, validated functionality through Blackbox testing, and recorded high user satisfaction. Their analysis further highlighted strong understandability (83%) under ISO 9126 standards, confirming that RAD not only accelerates development cycles but also produces systems that are accessible and aligned with user needs.
5. Click2Serve is usable and well-received, as evidenced by high ratings in Efficiency, Affect, Helpfulness, Control, and Learnability. Users found the system easy to learn, reliable, supportive, and beneficial for completing municipal service transactions.

RECOMMENDATION

In view of the findings and conclusions of this study, the following recommendations are offered:

1. The City Government of Alaminos is encouraged to adopt Click2Serve as an official platform for municipal service requests to improve service efficiency, standardize processes, and enhance tracking of requests across municipal departments.
2. Self-service kiosks should be deployed in strategic locations such as the city hall and barangay centers to ensure accessibility for citizens without internet access or mobile devices.
3. Municipal employees should be provided with proper training on system usage, ICT skills, and document management to ensure effective system implementation. Offices with limited ICT resources should also consider upgrading their computer equipment and internet connectivity.
4. Future system enhancements may include the integration of online payment, QR-code–based request tracking, multilingual support, and an improved AI chatbot to

further enhance user convenience and service delivery.

5. Regular usability evaluations using the SUMI criteria efficiency, affect, helpfulness, control, and learnability are recommended to maintain and improve system quality. Further optimization of the mobile version is also encouraged.
6. Future researchers may assess the long-term impact of Click2Serve on processing time, staff workload, and user satisfaction, as well as explore the use of advanced technologies such as predictive analytics.

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