**COVID PULSE: A REAL-TIME DIGOS CITY COVID-19**

**WEB-BASED DASHBOARD**

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**COR JESU COLLEGE, INC.**

Science, Technology, Engineering, and Mathematics (STEM)

Senior High School Department

Digos City

**CABRERA, AIDRE LOVE, S.**

March 2022

**COVID PULSE: A REAL-TIME DIGOS CITY COVID-19**

**WEB-BASED DASHBOARD**

A Science Investigatory Project

Presented to   
The Faculty of Cor Jesu College, Inc.

Basic Education Department

Digos City

In Partial Fulfillment of the Requirements in

Practical Research 3

by

CABRERA, AIDRE LOVE, S.

March 2022

**CHAPTER I**

**INTRODUCTION**

1. What is the study all about? (1-2 paragraphs)

- topic

The COVID-19 pandemic had triggered a worldwide health emergency. After the pervasive outbreak of a novel coronavirus strain called the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), it triggered a public health emergency. Prior to the declaration of the COVID-19 pandemic, in February 17, 2020, the outbreak of the COVID-19 virus had catalyzed the development of COVID-19 information system. With this, the Center for Systems Science and Engineering (CSSE) and John Hopkins University had developed an interactive information system, wherein the situation of the COVID-19 outbreak can be visualized and monitored concurrently. Thereafter, many have keened on the development and application of digital based technology as part of the COVID-19 pandemic planning and response. The COVID-19 pandemic is a turbulent situation, where the effort of response must be actionable and in real-time in order for it to be relevant. However, fortunately, the advent of technological innovation allowed the concept of access to monitoring the COVID-19 situation in real-time.

The COVID-19 pandemic had demonstrated that the internet had been superseded by realizing the internet was being utilized contrary to its purpose. Moreover, the pervasiveness of the internet, especially social media as a common source of information during the COVID-19 pandemic, eventually led to a massive increase in the complexity of the COVID-19 information environment. COVID-19 infodemic is one problem that has to be addressed. Infodemic is the rapid dissemination of accurate and inaccurate information, such as misinformation and disinformation, which eventually smears the line between true and false information. In other words, the abundance of information from various sources, including the unverified sources, relayed to the public is a critical issue (Lancet, 2020).

- problem/issue (provide pieces of evidence globally, regionally [ASEAN], locally)

2. What is known about the topic?

- summarized RRL

- research gap ( inconclusive findings, on-going debate, no study conducted yet/ limited studies)

3. Why is the purpose of the study important?

- justification (significance of the study to the scientific community)

4. What is the unique contribution of your study?

Despite the benefits of having accessible information, its prominence also poses a significant problem. The COVID-19 pandemic had demonstrated that the internet had been superseded by realizing the internet was being utilized contrary to its purpose. Moreover, the pervasiveness of the internet, especially social media as a common source of information during the COVID-19 pandemic, eventually led to a massive increase in the complexity of the COVID-19 information environment. COVID-19 infodemic is one problem that has to be addressed. Infodemic is the rapid dissemination of accurate and inaccurate information, such as misinformation and disinformation, which eventually smears the line between true and false information. In other words, the abundance of information from various sources, including the unverified sources, relayed to the public is a critical issue (Lancet, 2020).

The emergence of the COVID-19 pandemic has given the risk of dissemination of misinformation, exacerbated by the wide use of the internet and social media platforms, proving to be a problem on the same level as the virus itself. Although misinformation is not an unprecedented issue, it certainly gained prominence after the COVID-19 pandemic was declared, owing to its virulent effect and all of the corresponding ramifications. Despite the positive impact of social media amidst the COVID-19 pandemic, it is also responsible for amplifying misinformation. Impacts of misinformation may include the exacerbation of COVID-19 vaccine hesitancy, conspiracy theories, and promotion of life-threatening health decisions.

That is also why tech companies, such as Twitter, Facebook, and Google, have implemented various strategies to combat the rapid dissemination of misinformation on social media platforms. Hence, a robust information system is necessary, if not, crucial as part of the effort to control the COVID-19 pandemic. Innovative technology and automation have the great potential to strengthen public health like never before in the history of civilization. Health authorities have developed many approaches to improve the COVID-19 information system and effective public communication. COVID-19 information systems are more critical than at any other time for handling data and information at the pace required by the ambiguity of the COVID-19 situation.

Robust information systems provide essential empirical support for making the most informed decisions feasible and improving awareness of safety measures. Information systems allow quick, expeditious, and coordinated information accessibility and sharing, and they promote the prioritization of care, access, and response, particularly for individuals in contexts of susceptibility. With appropriately disaggregated health information, it is feasible to develop a mechanism that minimizes potential health disparities at all levels of care and facilitates the execution of initiatives to tackle such inefficiencies. Integrating technology to promote advanced and digital health information became an option for improving a robust health information system. What is needed is an actionable expansion of the present COVID-19 information system to have an effective COVID-19 public communication.

This area of study is important since effective public health communication plays a crucial part in controlling the COVID-19 pandemic. As the COVID-19 virus continued to ravage the world, adequate, reliable, timely, and relevant information became a highly essential resource for people to be consistently informed. Fortunately, healthcare authorities could communicate to the public effectively by digitizing information systems (Bernardino & Bacelar Nicolau, 2020). That is why COVID-19 information systems are more critical than at any other time for handling data and information at the pace required by the ambiguity of the COVID-19 situation. Consequently, many have developed approaches to improve and expand the COVID-19 information system and public communication (Clarke et al., 2021; World Health Organization & Others, 2020). Health information systems were expanded at an unprecedented pace due to the urgency of the worldwide need for COVID-19 data and the widespread internet penetration (Ivanković et al., 2021; Max Roser & Ortiz-Ospina, 2022). That is because COVID-19 information systems may support decision-making and help individuals adapt their health behaviors to the crisis. COVID-19 information systems make it easier to prioritize healthcare, access, and response for those most in need by making it possible to access and share data immediately, expeditiously, and in a coordinated manner (World Health Organization, 2020).

Another way of expanding the information system is by adopting web-based COVID-19 dashboards as a medium for effective public communication of the data. Accessible web-based dashboards for COVID-19 data have become quite prominent and necessary. It provides essential empirical support for making the most informed decisions feasible and improving awareness of safety measures for Digoseños (World Health Organization, 2020). Hence, the primary rationale for the topic of interest is to provide an exclusive and area-specific data communication for Digoseños since there is a need for expansion of the Digos City COVID-19 Information System. Researching this topic and developing a COVID-19 dashboard that will contribute to the improvement of a robust information system in Digos city is necessary, if not, crucial as part of the effort to control the COVID-19 pandemic.

Publicly available COVID-19 related information is crucial amidst the COVID-19 pandemic. COVID-19-related information is essential in making health-informed decisions.

The public reporting of data during a pandemic is a core government function to protect population health and safety

**Theoretical and Conceptual Framework**

**Statement of the Problem**

**Hypothesis**

**Significance of the Study**

**Scope and Limitation of the Study**

**Definition of Terms**

**Home.** The home webpage will act as the website's beginning point. The default page loads when the target users, such as the Digoseños, visit the COVID Pulse website.

**COVID-19 Insights.** This webpage will contain the main objective of this project. The elaborated COVID-19 dashboard that visualizes the COVID-19 Cases and Vaccination per segment will be embedded in the said webpage.

**Health & Wellbeing.** This webpage will contain information about the SARS-CoV2 virus, COVID-19 safety guidelines, COVID-19 testing, and other health-related resources.

**COVID-19 Updates.** This webpage will contain the essential updates from the Digos City government, such as the Alert Level ordinance, and will also contain the COVID-19 related news articles for the Digoseños to be constantly updated and informed.

**About.** The purpose of this web page is to inform the web application visitors about the COVID Pulse's details and the web application's critical operations.

**Frontend Prototyping.** The initial but most crucial phase of the design stage of the development process is prototyping the COVID Pulse web application. The researcher will be able to ideate the reference for the end product, which allows the development process to be convenient and reduce the cost and time as it provides a comprehensive high-level reference and overview of the final output. Furthermore, the prototyping phase will allow the researcher to make quick necessary modifications and be flexible with the User Interface and

**User Experience design.** Through wire framing, the prototyping will be done through Low Fidelity and Hi-Fidelity prototypes (Figures 4 and 5). Although sketching is often part of the prototyping procedure, it was not included since it is deemed unnecessary.

**Frontend and Backend Layer.** The outer layer of the web application project that the Digoseños (Users) see and interact with is the Frontend, also known as the client-side. Specifically, it is the visual elements such as the User Interface (UI) and User Experience (UX) designing of COVID Pulse. The backend layer is scoped on the server-side of the web application, in which the primary purpose is to make sure everything of the web application is functional. Also, it is the part where the clients of the COVID Pulse will not interact and cannot interact with users.

Data and APIs The data dashboard will acquire the COVID-19 aggregated epidemiological data from various APIs in terms of Local, Regional, National, and Worldwide. Specifically, the data source will be from the following repositories:

**JHU CSSE COVID-19 Data.** It is a COVID-19 data repository collected, provided, and operated by the Center for Systems Science and Engineering from Johns Hopkins University. It is publicly available for everyone to be accessed from the GitHub JHU CSSE repository.

**WHO COVID-19 Data.** It is the official COVID-19 data source aggregated by the World Health Organization and is distributed by comma-separated values (CSV) files.

**DOH COVID-19 Data.** The official COVID-19 data source aggregated by the Department of Health can be accessed through the DOH Data Drop.

**CHAPTER II**

**REVIEW OF RELATED LITERATURE AND STUDIES**

**Topic 1**

Content

**Topic 2**

Content

**Topic 3**

Content

**Related Studies**

Content

**CHAPTER III**

**METHOD**

Give introductory statement….

**Research Design**

Content

**Locale of the Study**

Content

**Materials and Methods**

Content (Give a brief description of all the materials involved in the prototype as well as how will they be used in the study.

**System Flow**

Content (Provide a diagram/algorithm of the processes involved in your prototype system)

**System Design**

Content (Provide a picture of your prototype with corresponding labels).

**Hardware Implementation**

Content

**Device Testing and Simulation**

Content

**Data Analysis**

Content