



A HUMAN COUNTING FOR CROWD CONTROL AND SOCIAL DISTANCING SYSTEM USING IMAGE RECOGNITION

WEST VISAYAS STATE UNIVERSITY - COLLEGE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY

USER MANUAL

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monitor . control . prevent

A HUMAN COUNTING FOR CROWD CONTROL AND SOCIAL DISTANCING SYSTEM
USING IMAGE RECOGNITION

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Disclaimer

This software project and its corresponding documentation entitled "Countme: A Human Counting for Crowd Control and Social Distancing System Using Image Recognition" is submitted to the Collage of Information and Communications Technology, West Visayas State university, in partial fulfillment of the requirements for the degree, Bachelor of Science in Information Technology. It is the product of our own work, except were indicated text.

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Table of Contents

1.0 Getting Started

- 1.1 Introduction
- 1.2 Software Specification
- 1.3 Hardware Specifications
- 1.4 System Implementation
- 1.5 Installation

2.0 Using the System

- 2.1 Sign in/up
- 2.2 Navigating Dashboard
- 2.3 Camera Page
- 2.4 Gallery Page
- 2.5 DashboardPage
- 2.6 FAQs (Frequently Asked Questions)

3.0 Contact Details



1.1 Introduction

Coronavirus disease 2019 (COVID-19) was discovered and reported in Wuhan, China, by the end of 2019. The World Health Organization declared the outbreak of the virus rapidly spreading and is profoundly affecting lives around the globe.

After the easing of quarantine measures in the Philippines on May 16, 2020, the Department of Health (DOH) issued a strong recommendation to the general public regarding the adoption of social distancing as a preventive measure against the transmission of COVID-19.

Welcome to CountMe, a system that is expected to greatly assist in keeping adequate social distance in crowded environments such as malls, offices, schools, public markets, and other public places. This User Guide will assist you in using the CountMe software.



1.2 Software Specifications

The platform for this system are laptops and computers that run a windows-based operating system. Google Colab is also being used as a development platform. Jupyter Notebook and Visual Studio Code are used for developing the system, uses python ver.3 as a programming language and MongoDb for its database.

1.3 Hardware Specifications

For the system to be fully functional, the hardware specifications must be met. The researchers utilized a laptop or desktop computer that runs a 64-bit Windows operating system, a surveillance camera, and software and with windows 11th Gen Intel(R) Core(TM) i5-1135G7 processor running at 2.40GHz or 2.42GHz, 8GB of RAM, and Intel(R) Iris(R) Xe Graphics.

1.4 System Implementation

This system was designed to monitor the crowd as well as the social distancing within establishments. In order to do this, the user must log in to the system. After logging in, the user will then proceed to the homepage or to the dashboard. For the user to connect its surveillance camera, there will be a feature in the navigation bar enabling your webcam or surveillance camera to connect. The output of this system is a real-time detection and monitoring of the people inside the establishment. The green and red box around each individual within the camera detects whether there is social distancing performed.

1.4 Software Installation

a. Download the code through Github repository

(https://github.com/Jhemercolas/CountMe_System.git)

and download the additional required assets to run the code in this link

(https://drive.google.com/file/d/1XBCxAXRRqAEwnmoU2sG0j0aEBACRj1QP/view?usp=drive_link),

or download the whole package in this link

(https://drive.google.com/file/d/1aGYI4zbxfL5EpurpLItSI-y3wtKNdrE5/view?usp=drive_link)

b. Extract the folder.

c. After downloading, open the whole folder and load it through Visual Studio Code.

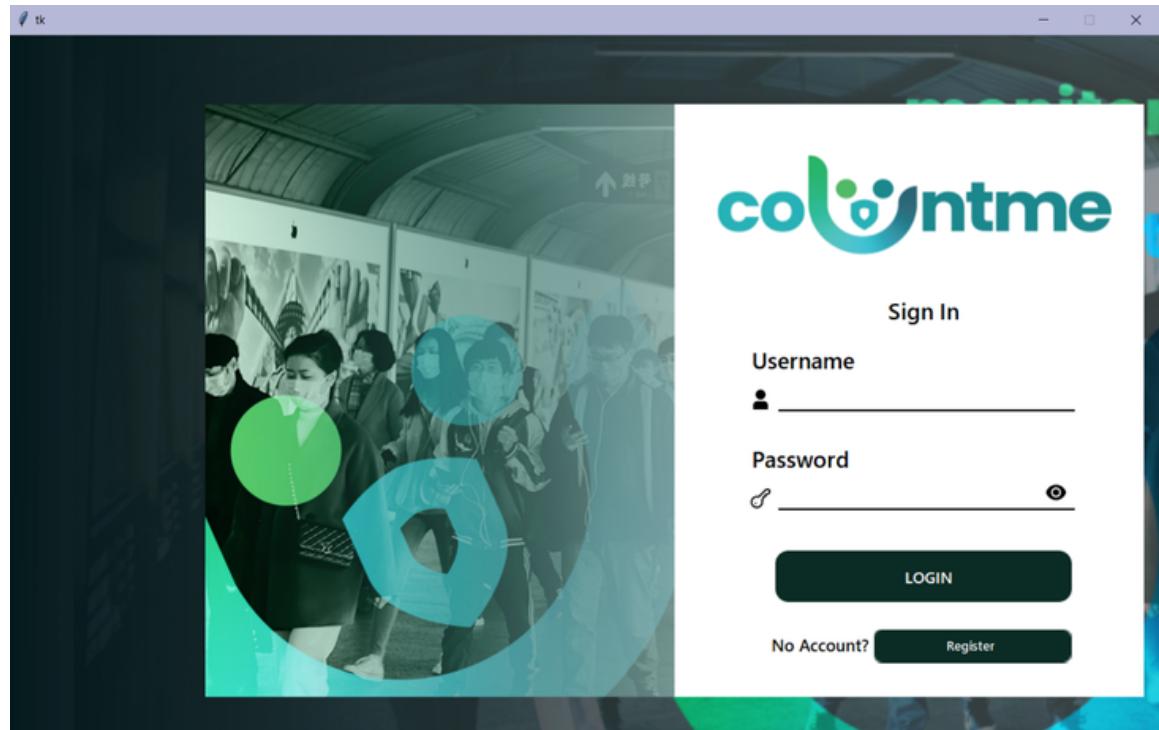
c. The Login window will appear, register if no account yet, then login.

2.0 Using the System

2.1 Sign in/up

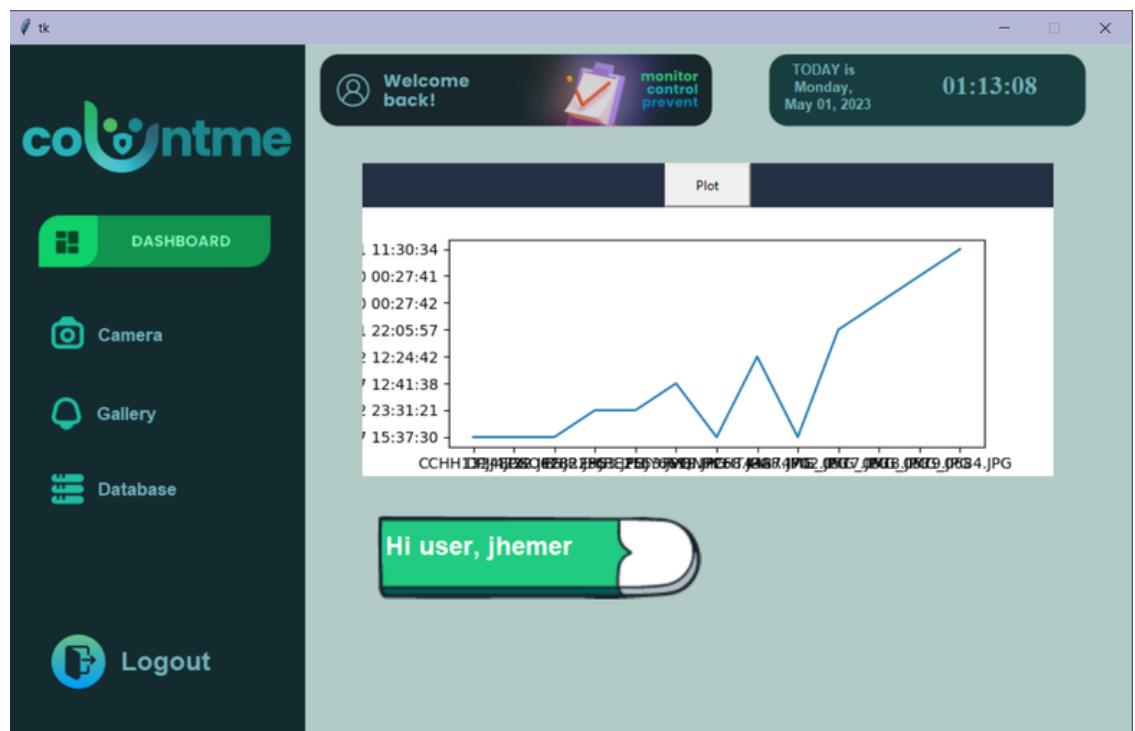
Give the information that is required. Fill out all of the required fields when signing up for the system, such as a username or email, and password confirmation.

Following the click of the "Register" button, the information entered will be saved and added to the database.



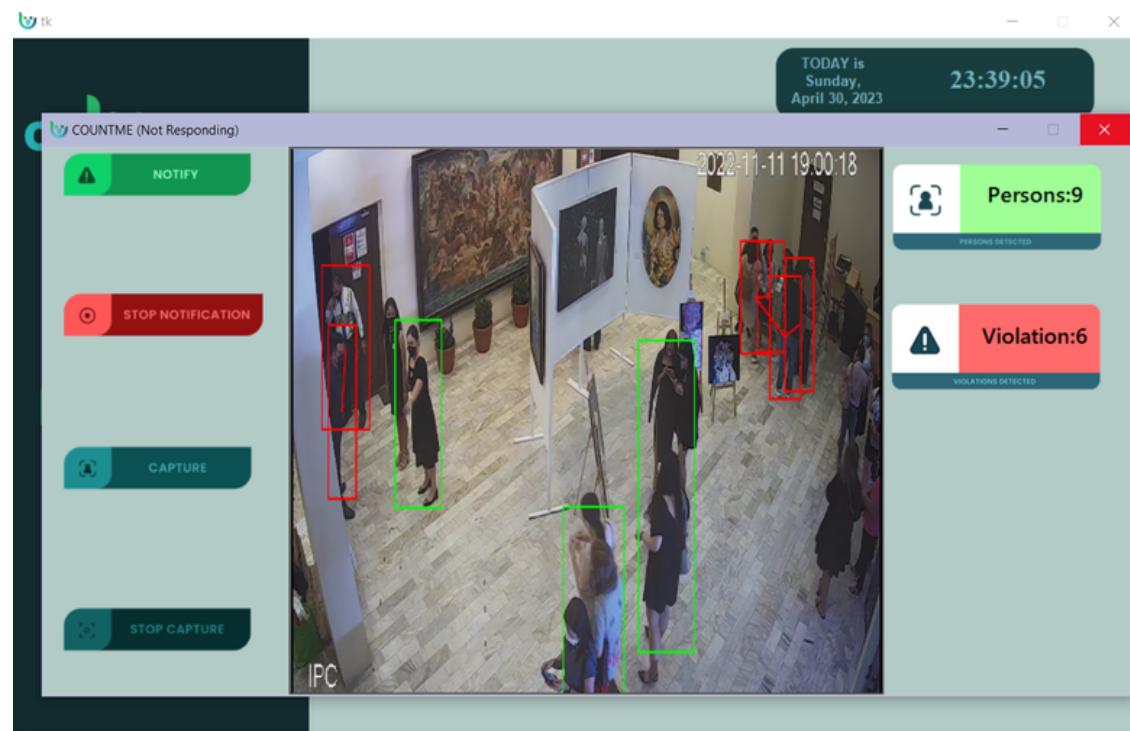
2.2 Navigating Dashboard

After successfully logging in, you will be directed to the dashboard where you can see the reports of the system. Users can also see the navigation bar on the left side, consisting of the Dashboard, Camera, Gallery, and the Database page.



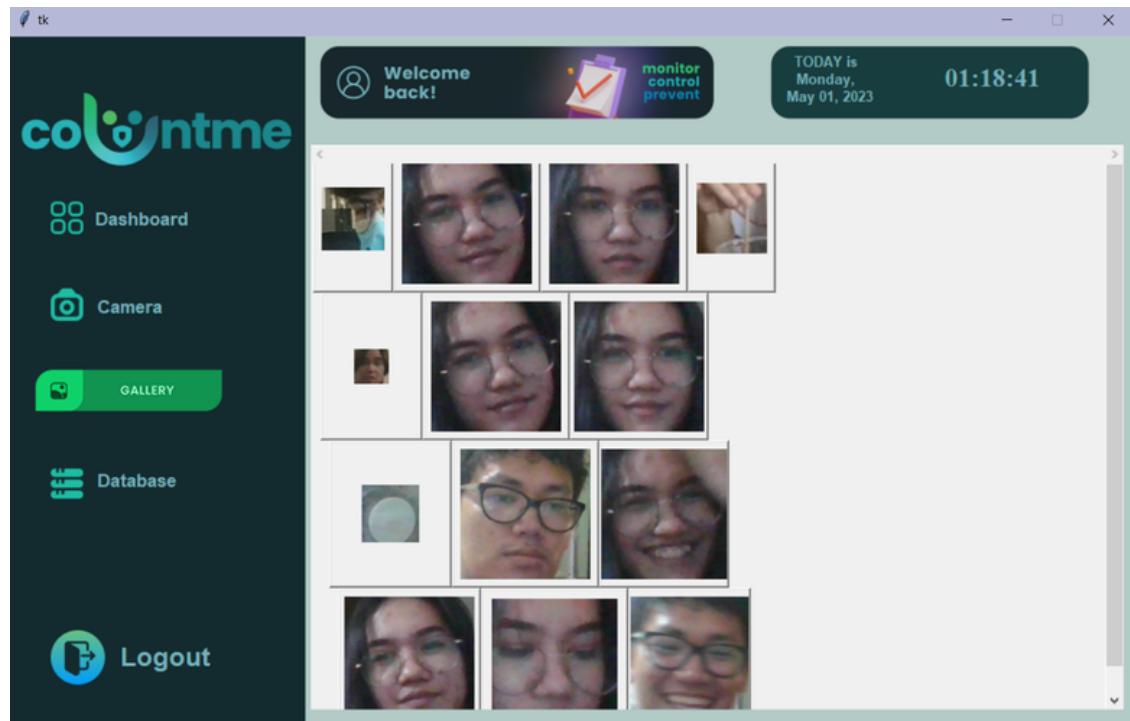
2.3 Camera Page

- a. The camera page starts with the button "Connect to camera" and when clicked will open another window that will display the camera feed, part of it will be the system's function which is to monitor the people if they are following the social distancing protocol. The green box indicates that proper distance is maintained and when it turns red means that the social distancing protocol has been violated, a line will appear between the two or more individuals as a sign of distance violation.
- b. Another feature is the on/off notification and capture button. The notify button starts the notification feature which will alert the user when the system detects a violation of the social distancing protocol. The capture button starts the image capture feature which will only be activated when the system detects a violation, the individuals that violated the social distancing protocol will have their faces recorded in the local storage.



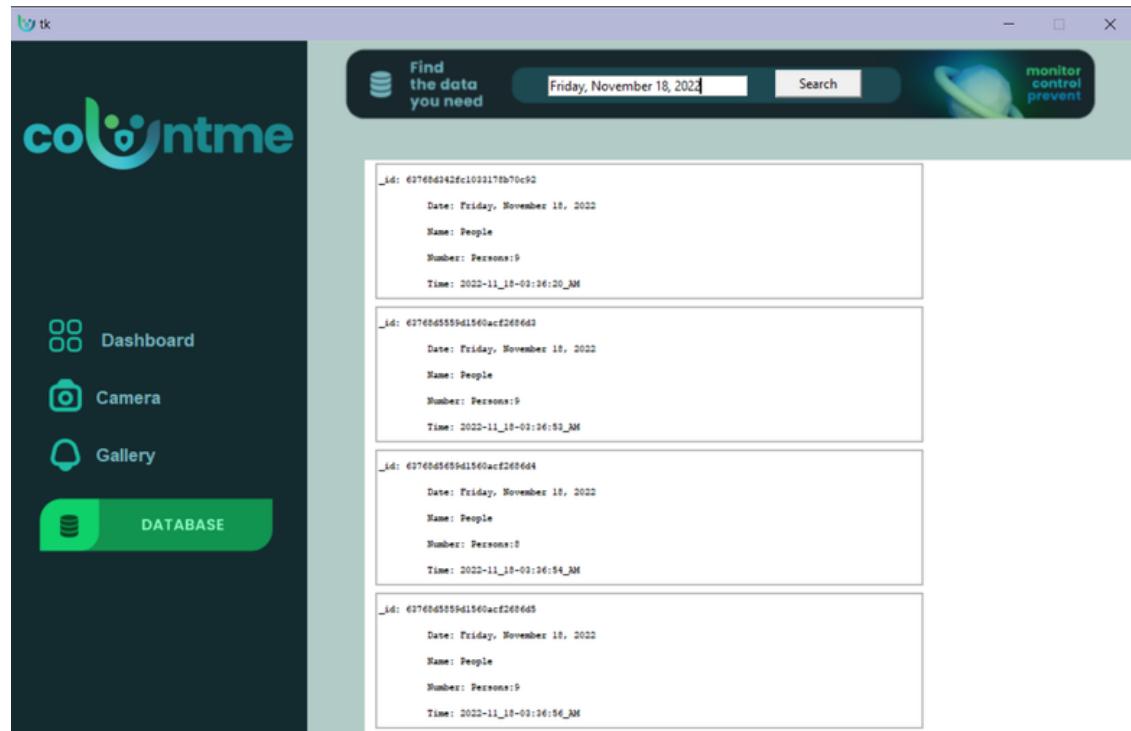
2.4 Gallery Page

The Gallery page displays the images of the faces of social distancing violators.



2.5 Dashboard Page

The Dashboard page will display the records of how many individuals have violated the social distancing protocol, and will display the exact time. A need to input the date in the search bar to specifically locate the required report.



2.6 FAQs

(Frequently Asked Questions)

Can the system accurately count the number of people in crowded scenarios?

Yes

Can it be deployed in large-scale public spaces?

Yes, the system is capable of being deployed in a large-scale public spaces such as large department area inside malls.

What is the accuracy rate of the system in different scenarios?

The accuracy of the system differ on the environment it was installed. the angle of the camera and the distance of the camera the system is using.

How does the system handle variations in lighting conditions or environmental factors?

The system doesn't have the function to handle the change in the lighting conditions and environmental factors as the system's main function is only capable of counting persons and detecting distance.

How does the system handle occlusions or overlapping individuals?

The system still detects overlapping individuals.



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