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# COVID 19 SMART FENCING SYSTEM AND CONTACT TRACEABILITY DEVICE

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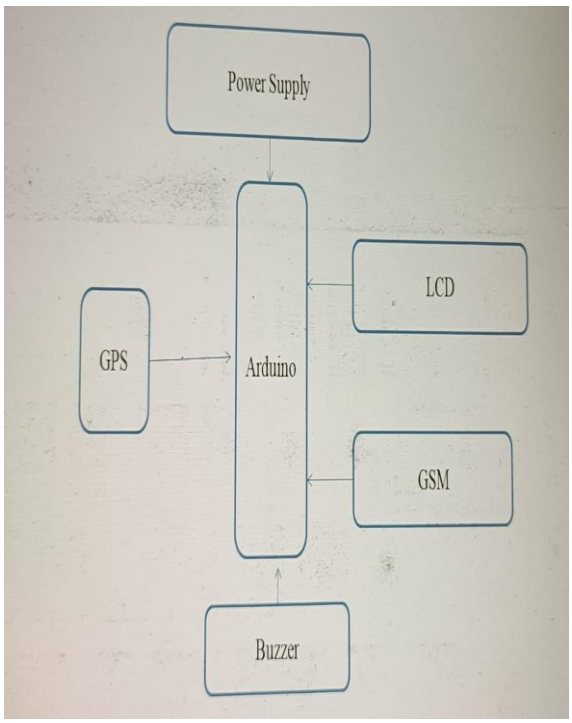
*I. ABSTRACT*

*Corona virus disease 2019, i.e. COVID-19 has imposed the public health measure of keeping social distancing for preventing mass transmission of COVID-19. For monitoring the various types of digital surveillance systems, which include contact tracing systems and drone-based monitoring systems. Due to the inconvenience of manual labor, traditional contact tracing systems are gradually replaced by the efficient automated contact tracing applications that are developed for social distancing and keeping the trace of transmission, we are obligated to develop smart phones However, the commencement of automated contact tracing applications introduces the inevitable privacy and security challenges. Nevertheless, unawareness and/or lack of smartphone usage among mass people lead to drone-based monitoring systems. These systems also invite unwelcomed privacy and security challenges. This paper discusses the recently designed and developed digital surveillance system applications with their protocols deployed in several countries around the world. Their privacy and security challenges are discussed as well as analyzed from the viewpoint of privacy acts. Several recommendations are suggested separately for automated contact tracing systems and drone-based monitoring systems, which could further be explored and implemented afterwards to prevent any possible privacy violation and protect an unsuspecting person from any potential cyber attack.*

## II. INTRODUCTION

The global economy by confining people from daily commercial activities. With no specific vaccine or medicine for preventing or curing, currently, the best approach to avoid COVID-19 is not to get ourselves exposed to it. Having close contact with other persons, which is approximately less than six feet , can significantly increase the likelihood of inhaling respiratory droplets from the infected persons by coughing, sneezing, or even talking. Social distancing has to be preserved between all, as recent studies have shown that asymptomatic people could silently propagate the disease without raising any suspicion. This social distancing invokes public health specialists and workers to join with the technical researchers to implement the digital surveillance systems (DSSs) to monitor people digitally, since the process is quite tedious to carry out manually. One of the foremost DSSs is known as automated contact tracing (ACT). To detect individuals who have recently come close in contact with COVID-19 positive persons, ACT systems automates the traditional manual interview with the affected individuals which are administered by the health authorities. Instead of gathering the contacts the affected individual had with other individuals for the last 2-3 weeks through extensive interviews, the ACT systems using smartphone applications (apps) can be an excellent alternative which has been introduced, developed, and even deployed in some countries . Also, it is quite challenging for people to reminisce of their last 2-3 weeks precisely when they can also affect other unknown persons in public places. Moreover, these interviews need a skilled workforce with continuous rigorous training, which is sometimes not feasible.

## III. BLOCK DIAGRAM




## IV. LITERATURE SURVEY

Governments in several countries have already employed DSS in the form of ACT apps or programs which use various devices and data sources. To name a few, ACT apps are being implemented in (alphabetically) Bahrain, China, Colombia, Czech Republic, Ghana, India, Israel, Japan, North Macedonia, Norway, Singapore, South Korea and several states in the United States [6]. However, Singapore and Taiwan were prepared for COVID-19 as the learning from the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak was still a fresh memory to recall. Moreover, South Korea planned and organized well due to the lesson learned from the 2015 Middle Eastern Respiratory Syndrome (MERS). Japan, on the other hand, initially utilized the group mentality to inspire over self concern to deploy social distancing successfully.

Now, we focus on some related works focusing on the ACT apps and the associated protocols. First, the Trace Together app is considered as the pioneer of the implemented ACT apps for mass people. It was endorsed by the Singaporean government back in March 2020. Second, Covid Safe was deployed by the Australian government in the last week of April 2020. Covid Safe abides by the Bluetrace protocol, same as Trace Together. Third, ROBust and privacy-preserving proximity Tracing protocol, popularly known by its acronym ROBERT, is an ACT app protocol for the centralized approach. It is co-developed by the researchers from Institute of National Research and Information of Automation (INRIA) of France and Fraunhofer of Germany. The Stop Covid app, abiding by the ROBERT protocol, has been released by the French government in early June 2020 and lacks enough privacy protection for its users.

## V. DESIGN METHODOLGY

**Arduino Uno** is a microcontroller board developed by Arduino.cc which is an open-source electronics platform mainly based on AVR microcontroller Atmega328. First Arduino project was started in Interaction Design Institute Ivrea in 2003 by David Cuartielles and Massimo Banzi with the intention of providing a cheap and flexible way to students and professional for controlling a number of devices in the real world. The current version of Arduino Uno comes with USB interface, 6 analog input pins, 14 I/O digital ports that are used to connect with external electronic circuits. Out of 14 I/O ports, 6 pins can be used for PWM output. It allows the designers to control and sense the external electronic devices in the real world. This board comes with all the features required to run the controller and can be directly connected to the computer through USB cable that is used to transfer the code to the controller using IDE (Integrated Development Environment) software, mainly developed to program Arduino.

LCD stands for **L**iquid **C**rystal **D**isplay. LCD is finding wide spread use replacing LEDs (seven segment LEDs or other multi segment LEDs) because of the following reasons:

The declining prices of LCDs. The ability to display numbers, characters and graphics. This is in contrast to

LEDs, which are limited to numbers and a few characters. Incorporation of a refreshing controller into the LCD, thereby relieving the CPU of the task of refreshing the LCD. In contrast, the LED must be refreshed by the CPU to keep displaying the data. Ease of programming for characters and graphics.

GSM (Global System for Mobile communications) is a cellular network, which means that mobile phones connect to it by searching for cells in the immediate vicinity. GSM networks operate in four different frequency ranges. Most GSM networks operate in the 900 MHz or 1800 MHz bands. Some countries in the Americas use the 850 MHz and 1900 MHz bands because the 900 and 1800 MHz frequency bands were already allocated. The rarer 400 and 450 MHz frequency bands are assigned in some countries, where these frequencies were previously used for first-generation systems.

The **Global Positioning System (GPS)** is the only fully functional Global Navigation Satellite System (GNSS). The GPS uses a constellation of between 24 and 32 Medium Earth Orbit satellites that transmit precise microwave signals, which enable GPS receivers to determine their location, speed,. GPS was developed by the United States Department of Defense. Its official name is **NAVSTAR-GPS**. Although NAVSTAR-GPS is not an acronym, a few backronyms have been created for it. The GPS satellite constellation is managed by the United States Air Force 50th Space Wing.

Global Positioning System is an earth-orbiting-satellite based system that provides signals available anywhere on or above the earth, twenty-four hours a day, which can be used to determine precise time and the position of a GPS receiver in three dimensions. GPS is increasingly used as an input for Geographic Information Systems particularly for precise positioning of geospatial data and the collection of data in the field. Precise positioning is possible using GPS receivers at reference locations providing corrections and relative positioning data for remote receivers. Time and frequency dissemination, based on the precise clocks on board the SVs and controlled by the monitor stations, is another, use for GPS. Astronomical observatories telecommunications facilities and laboratory standards can be set to precise time signals or controlled to accurate frequencies by special purpose GPS receivers.

GPS receivers require different signals in order to function figure. These variables are broadcast after position and time have been successfully calculated and determined. To ensure that the different types of appliances are portable there are either international standards for data exchange (NMEA and RTCM), or the Manufacturer provides defined (proprietary) formats and protocols.

## VI . RSULTS

When a covid infected person gets out from isolation then this device gives the buzzer sound that infected person is around . And also the device will sends the SMS to authorities through GSM that infected person has came out from isolation and it will send the latitude and longitude of infected person through GPS. So this device helps to track the infected person when he came out from isolation and it will alert other people.

## VII. CONCLUSION

To conclude, it is safe to say that DSSs should be used properly aligned to privacy acts and security measures. Both ACT and drone surveillance could be vulnerable to privacy and security challenges. However, this paper not only summarizes the challenges, but also provides several recommendations to consider. In the near future, these recommendations could be explored further and implemented to enhance the current situation. Since COVID-19 is staying for long and recurring, there is no other option than staying safe. Appropriate usage of DSSs can ensure this safety and constant improvements should be carried out to make smooth operations.

## VIII. REFERENCES

[1] Y. Gvili, “Security Analysis of the COVID-19 Contact Tracing Specifications by Apple Inc. and Google Inc,” in Cryptology ePrint Archive: 2020/428, International Association for Cryptologic Research (IACR).

[2] Centers for Disease Control and Prevention (CDC), United States, "Coronavirus Disease 2019 (COVID-19), How to Protect Yourself & Others," https://www.cdc.gov/coronavirus/2019-ncov/preventgetting-sick/prevention.html (updated on: April 24, 2020 and last accessed on: May 29, 2020).

[3] N. Ahmed et al., "A Survey of COVID-19 Contact Tracing Apps," ar X iv preprint arXiv:2006.10306v1 (2020).

[4] L. Reichert, S. Brack, and B. Scheuermann, "A Survey of Automatic Contact Tracing Approaches," in Cryptology e Print Archive: 2020/672, International Association for Cryptologic Research (IACR).

[5] "Privacy and Security Risk Evaluation of Digital Proximity Tracing Systems," The Decentralized Privacy Preserving Proximity Tracing (DP-3T) Project, 21 April 2020.

[6] L. Simko, R. Calo, F. Roesner, and T. Kohno. "COVID-19 Contact Tracing and Privacy: Studying Opinion and Preferences," arXiv preprint arXiv:2005.06056 (2020).

[7] J. K. Liu et al., "Privacy-Preserving COVID-19 Contact Tracing App: A Zero-Knowledge Proof Approach," in Cryptology ePrint Archive: 2020/528, International Association for Cryptologic Research (IACR).

[8] Z. Wan and X. Liu, "ContactChaser: A Simple yet Effective Contact Tracing Scheme with Strong Privacy," in Cryptology ePrint Archive: 2020/630, International Association for Cryptologic Research (IACR).

[9] L. Baumgärtner et al., "Mind the GAP: Security & Privacy Risks of Contact Tracing Apps," arXiv preprint arXiv:2006.05914 (2020).

[10] K. Sailunaz, M. Alhussein, M. Shahiduzzaman, F. Anowar, and K. A. A. Mamun, "CMED: Cloud based medical system framework for rural health monitoring in developing countries," Computers & Electrical Engineering 53 (2016): 469-481.

[11] N. Lu, K. W. Cheng, N. Qamar, K. C. Huan, and J. A. Johnson, "Weathering COVID-19 storm: Successful control measures of five Asian countries," American journal of infection control, 48(7), 851– 852 (2020).

[12] S. A. Tovino, "The HIPAA Privacy Rule and the EU GDPR: Illustrative Comparisons," Seton Hall law review, 47(4), 973–993, 2017.

[13] Kingdom of Bahrain. eGovernment Appstore. 2020.[Online] Available at: https://apps.bahrain.bh/CMSWebApplication/action/ Show App Details Action selected App ID=321&appLanguage=en, last accessed on May 22, 2020.

[14] C. C. Lai, T. P. Shih, W. C. Ko, H. J. Tang, and P.R. Hsueh, "Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): the epidemic and the challenges," International journal of antimicrobial agents, p.105924, 2020.

[15] X. Yu, and R. Yang, "COVID-19 transmission through asymptomatic carriers is a challenge to containment," in Influenza and Other Respiratory Viruses, Wiley Online Library, 2020.

[16] R. Altawy and A. M. Youssef, "Security, Privacy, and Safety Aspects of Civilian Drones," ACM Transactions on Cyber-Physical Systems, vol. 1, no. 2, pp. 1–25, 2017.

[17] T. Gloe, "Forensic analysis of ordered data structures on the example of JPEG files," 2012 IEEE International Workshop on Information Forensics and Security (WIFS), 2012.