

MEDICARD

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I. INTRODUCTION:

Long waiting line in hospitals is one of the most common problem faced by people who are in need of any medical attention. This problem persists in the past until today this kind of problem persists in our society. Such conflict in hospitals or in clinics have many adverse effects on the patient and in some cases it aggravates the health condition of the patients. This is one of the reasons why a person's diseases worsen. Filling up forms during their check-up became a hassle for both the patient and the doctor. Our proposed solution, the MediCard, will therefore address this problem faced by many today.

A. NEED FOR THIS STUDY:

Many studies have shown that the common problem of people when they are in need of any medical attention is the long waiting line in hospitals and medical clinics. The long queue is not just for waiting for the doctor but also for some medical tests, such as x-ray, complete blood count (CBC), stool tests and many more medical tests.

Ameh, M., Oyefabi, M. & Sabo, B.(2013) stated that the majority of patients (78.1%) spend 2 hours or less on the queue before being seen by the doctor, and less than 1 hour to see the doctor. This dissatisfaction affects not only the patients' mood but the working environment in general. A study conducted by Schull, M., Stukel, T. & Vermeulen, M. (2011) found that long wait time can lead to adverse health effects such as stress, anxiety or pain.

B. BACKGROUND:

Kembe, M. & Onoja, A.(2018) claimed that existing knowledge of the use of queuing model to determine system parameters is of outermost priority to healthcare providers who seek to attract, keep and provide quality healthcare to a patient in the ever-competitive "marketplace." Queuing theory is a renowned and tested mathematical approach to the analysis of waiting lines. Their research have shown that the results of the analysis explicitly showed: average queue length, waiting time of pregnant women, as well as overworking of Doctors at the clinic could reduce at an optimal server level of six Doctors and a minimum total cost. As against the current server level of 4 Doctors at post with a high total cost which incur waiting and service costs. This model will help decision and other policies makers to solve the multi – server queuing problem where capacity and limited resource gives rises to longer waiting and services time.

C. OBJECTIVES:

1. To lessen the wait time for people who are seeking medical attention.
2. To lower the risk of cross-infection while waiting in the hospital.
3. To decrease stress, anxiety, and pain during their hospital visits or check-ups.
4. To make transactions more quick and efficient in a hospital setting.
5. To make a product through the use DIY materials

D. SOLUTION:

Since the coming of the cyber age, technology has been providing us solutions to problems with a long amount of time. Even to the most critical and prevalent issues that have existed in our time, technology, due to its versatile nature, is able to resolve them. In the field of business, encoding and storing documents are made easy through the usage of computer and a number of software for such purposes. This gives employees the extra amount of time to do other business-related tasks everyday which leads them to increase productivity in the workplace. Global Positioning System or GPS helps users to be guided in his or her travel. It provides ideal routes to go to in order to avoid from delays of one's travels as well as saves time and fuel. References are also made easy to be searched since the World Wide Web provides numerous of articles, books, etc. that would help you in your academic-related tasks. Technology, then, has been one of the leading answers to global problems and at the same time provides continuous ways of improving the convenience of people's lives.

We, the researchers, would like to solve the issue we stressed through the means of technology as well. As we stated in our introduction, our proposed solution for this is the Medicard. It is a type of technology that is based from the concept of smart card.

A Smart Card is a physical card that is embedded integrated circuits that can process data. It is similar with credit banks but a smart card has many features. It stores data and exchanges it with other users through means of interacting it with scanner-type machines. Today, smart cards have many applications towards other fields like transportations, banking, entertainment, etc. Our proposed solution would, then, help with reducing the long waiting lines in the health-care institutions, giving them also the contingency in their lives. Patients who would own this card will just tap it on the scanner machines then their identification will be confirmed by the reception desk. Doctors can review their medical history and give updates about their current medical condition with just the use of the card.

Since there are different kinds of smart cards, we will be choosing the easiest and most resourceful method in making our product since one of our main objectives of this paper is to create a DIY product.

A QR (Quick Response)-embedded smart card is a kind of smart card that uses QR code as a means to store up data. In terms of interaction and readability, QR cards are as fast as other smart cards and they are way cheaper and easier to be configured since the code that contains the data can be written through an existing QR code generator and be imprinted easily on the card. This means we could use an alternative way or any substituted materials for making our card. What is vital is that the QR code should be present or intact on the card.

II. METHODOLOGY:

We will be presenting following steps on how our product is to be made and the materials needed for its production:

MATERIALS:

Since one of our aims for this paper is to make a DIY invention, we utilized materials that are both used and available in our inventory. The following are: used cardboard (the physical foundation of the card), glue (to attach together the cardboard and the card's template), QR generator (where we will make the QR code), and a site that contains a database where information of people would be stored.

PROCEDURES:

In this procedure we will be elaborating on the making of the QR code. Through our research on the production of the code, we found that the process of making it is less laborious since creating one can be through a site that generates QR codes. We found the most convenient one and the site's name is "The QR Code Generator (the link is: <https://www.the-qrcode-generator.com/>).

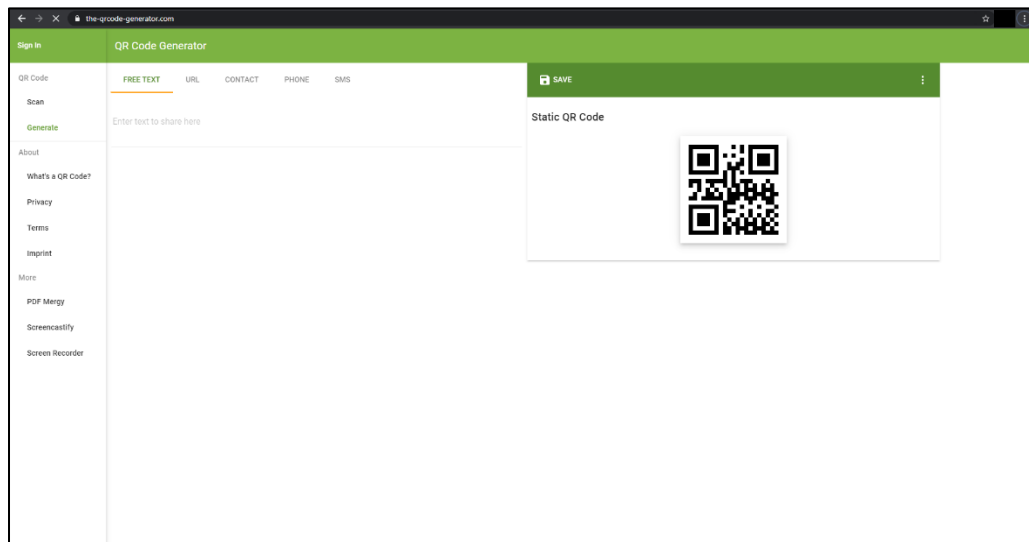


Figure 1 The Illustration shows the QR Code Generator Site

Upon accessing the site, it can be seen that the layout is simple as it looks. Below the website's title, there are five types of data that one can put in the QR code (these are Free Text, URL, Contact, Phone, SMS).

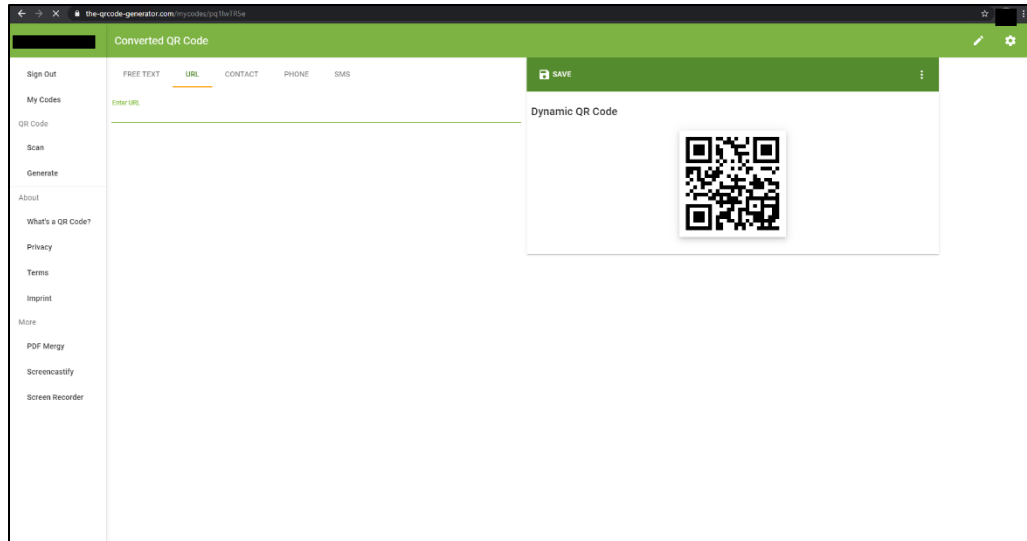


Figure 2 QR Code Generator showing the URL Section

We selected "URL" since the information of the people is located at the database site that is provided. Once scanned by the individual, it will be redirected there and at the same time the information of the person will be display there. We extracted the specified link of the database then pasted it on the insertion point of the site. After which the site generated the QR code for the URL and gave the preview of the code. After it's processed, we saved then put on the desired file name and saved it as ".png format.

On the creation of the physical card, we shaped the cardboard into the same shape and size as that of an ordinary card. Afterwards, the template or design of the MediCard (which is shown at DESIGNS) will be printed on a coupon bond. Note that on the design, the QR code should be included. Once printed, cut out the unoccupied portions of the coupon bond until the design of the card remains. Then glue altogether the template and the cardboard. The cardboard will be covered on the template.

SCANNER:

The alternative scanner for the QR code will be a smart phone. A smart phone has a built-in QR scanner which can read and open the data of the code once it is scanned. Since the data of our card is a URL it requires internet so that it can be accessed. A smart phone itself is a convenient scanner and saves up money and time from buying a QR scanner.

III. DESIGN

The following illustrations below displays the product (MediCard) and its contents:

First Proposed Design:

FRONT

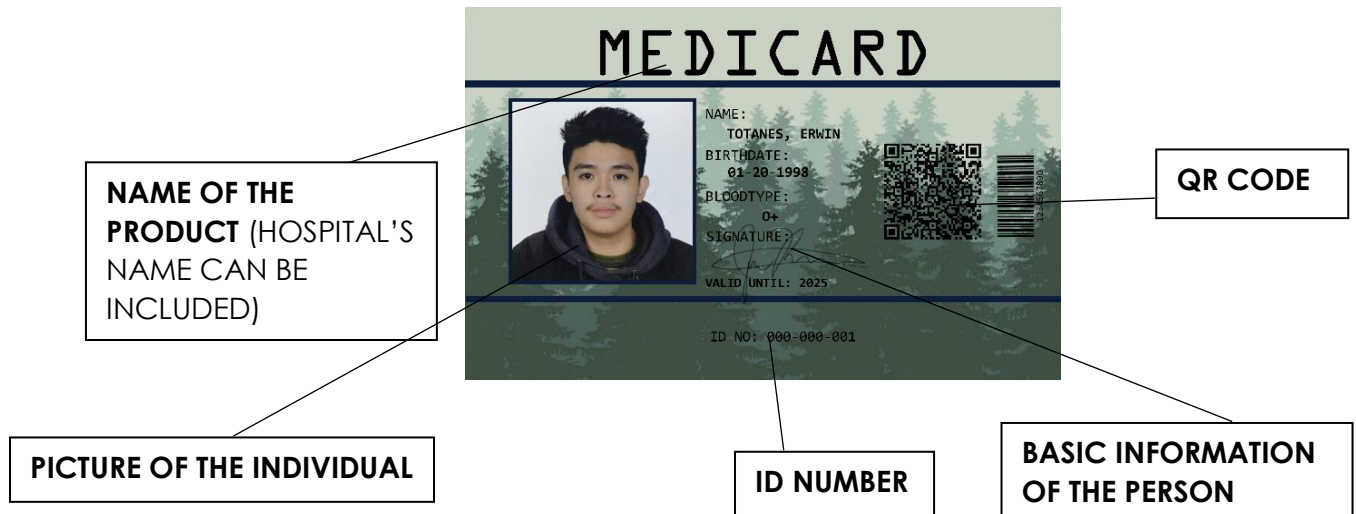


BACK

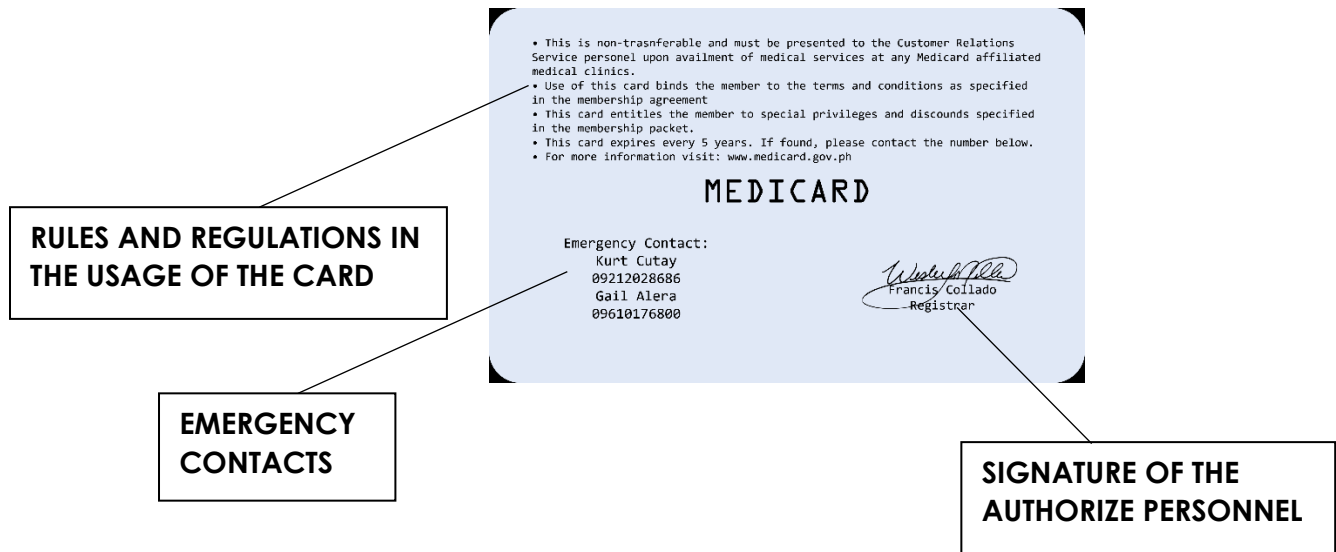


Second Proposed Design:

FRONT



BACK



The MediCard size will be 3.370 inches wide and 2.125 inches high in order it to fit in wallets of the user. Being compact in size allows the user to bring it wherever and whenever they want. It also have a chip inside, so when the user is going to have his/her check-up the doctor will just need to scan the QR code and all the personal information and medical records will be shown in a desktop. The doctor can update the card using their own record and make it easier for other health care personnel to know the updates.

The first design is colored green because the color green has healing power and is understood to be the most restful and relaxing color for the human eye to view. It also the main color of UC. The design purpose is to make it fun and unique from other ID designs. The font is big so that in case of emergency it will be easier to read.

The second design is colored grey because it symbolizes formal, conservative, and sophisticated. The design purpose is to make it look professional and formal. It has minimal design in order to make it clean and simple because simplicity is beauty. The font is small in order to save more space.

IV. CONCLUSION

The prevailing issue of long waiting lines and delays are still dominant in our healthcare institutions up until this point of time. Conflicts lead to other conflicts as these worsens the diseases or conditions of our fellow brothers and sisters. However, since the dawn of the cyber age came about, technology has offered an array of solutions to a number of problems we have today. That's why we, the researchers, deal the mentioned issue through means of technology as well.

Through our invention, the MediCard, this makes registration and accessing easier and more convenient to patients and medical staffs. Looking up to their records and updating their medical condition will be just easy with a tap of the card. The components required for its productions are quite easy to be gathered since it only uses cheap and used materials. The card has a built-in QR code that stores data. The set-up for the code is not that perplexed since one will just input the desired data using a QR generator. The program itself will do most of the processing. This also saves money for the individual who desires to produce one instead of buying a chip-embedded that is very expensive.

MediCard is the DIY product that does not only save lives but also saves ones money.

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