A PROJECT

REPORT ON

ATTENDANCE MONITORING SYSTEM

Submitted to
iSMRITI, IIT KANPUR

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UNDER THE GUIDANCE OF
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Bhubaneswar, ODISHA 751024

CERTIFICATE

This is to certify that the project entitled

"ATTENDANCE MONITORING SYSTEM"

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is a record of Bonafide work carried out by them, in the fulfillment of the requirement for the award of **Summer Internship** at iSMRITI , IIT KANPUR. This work is done during June, 2019 - July, 2019 , under our guidance.

Date: 13 / 07 / 2019

Prof. Laxmidhar Behera
Project Guide

ACKNOWLEDGEMENTS

We are profoundly grateful to **Prof. Laxmidhar Behera** for his expert guidance and encouragement throughout to see that this project rights its target since its commencement to its completion. The work is a team effort minus which the completion of this project was not possible.

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ABSTRACT

Every organization whether it be an educational institution or business organization, it has to maintain a proper record of attendance of students or employees for effective functioning of organization. Designing an efficient attendance management system for students to maintain the records with ease and accuracy is an important key behind motivating this project. Nowadays attendance is taken on paper and records are maintained where someone keeps all the records and does all the calculations at the end of the month due to which it takes time and students have to wait till month end to know their attendance. This system would improve accuracy of attendance records because it will remove all the hassles of roll calling and will save valuable time of the students as well as teachers.

Key Words- IoT(Internet of things), attendance, QR code, Raspberry Pi

CONTENT

INTRODUCTION

In this system the concept of IoT is applied to attendance system of a classroom. A portable module is designed which has the capability of recognizing the student via the QR code on their ID card and then sending the ID of student to the server with the help of android app, whose unique id is recognized. First of all the system requires connectivity to the internet, which can be achieved through Wi-Fi So a system is required which has the capability of Wi-Fi connectivity. Once the connection is established, it scans for the QR code via android application and sends it to the server (Raspberry Pi) for decoding the QR code. Once the decoding is done and recognizes the student, it sends the unique ID to the system for updation of the attendance.When the system receives the unique ID it marks the attendance of the student. System is basically a PC which maintains all the records of the attendance and calculates the attendance percentage. This attendance can be checked in real time on the website or android application, where a student can check his/her attendance in real time. The existing attendance system requires a teacher to take attendance by roll calling, which has many drawbacks, such as proxy attendance, extra efforts of teacher calculating the attendance percentage, even calculation errors can be made, and students not getting their attendance report till the end of the month. All these problems can be avoided by using this system, as this system uses QR code to identify the student, proxy attendance can't be marked, attendance is sent to server in real time, all the calculations are done by the server and students can check their attendance in real time.

1.1 Intended Audience

The audience of this system will be:
1. Students
2. Faculty members
3. Registration office.

1.2 Project Scope

The scope of the system is to have a high-tech environment in the educational institutes community. That means by using this attendance system, the community will transfer to the technical environment that they already have the Canvas system to help them manage the courses they have in the whole semester. This system will add some features in the attendance system to Canvas by using this in every classroom in an educational institute.

That will help the community use the technology in effective ways:
1. Make the attendee process easier and effective.
2. Help faculty in the attendance process every time.
3. Mange and organize the attendance page through Canvas.

1.3 Objective

The main objective of the project is to automate the process of attendance and make it possible to check attendance in real time. In this system we developed a android application to transmit the QR code from student's ID card to Raspberry Pi and followed by system to receive the data from the transmitting module and do the calculations to calculate attendance percentage of each and every student. This system also has android application through which student can check their attendance in real time. Android application is also used by teachers to give assignments to students so that students can get the notification.

OVERALL DESCRIPTION

2.1 Product Perspective

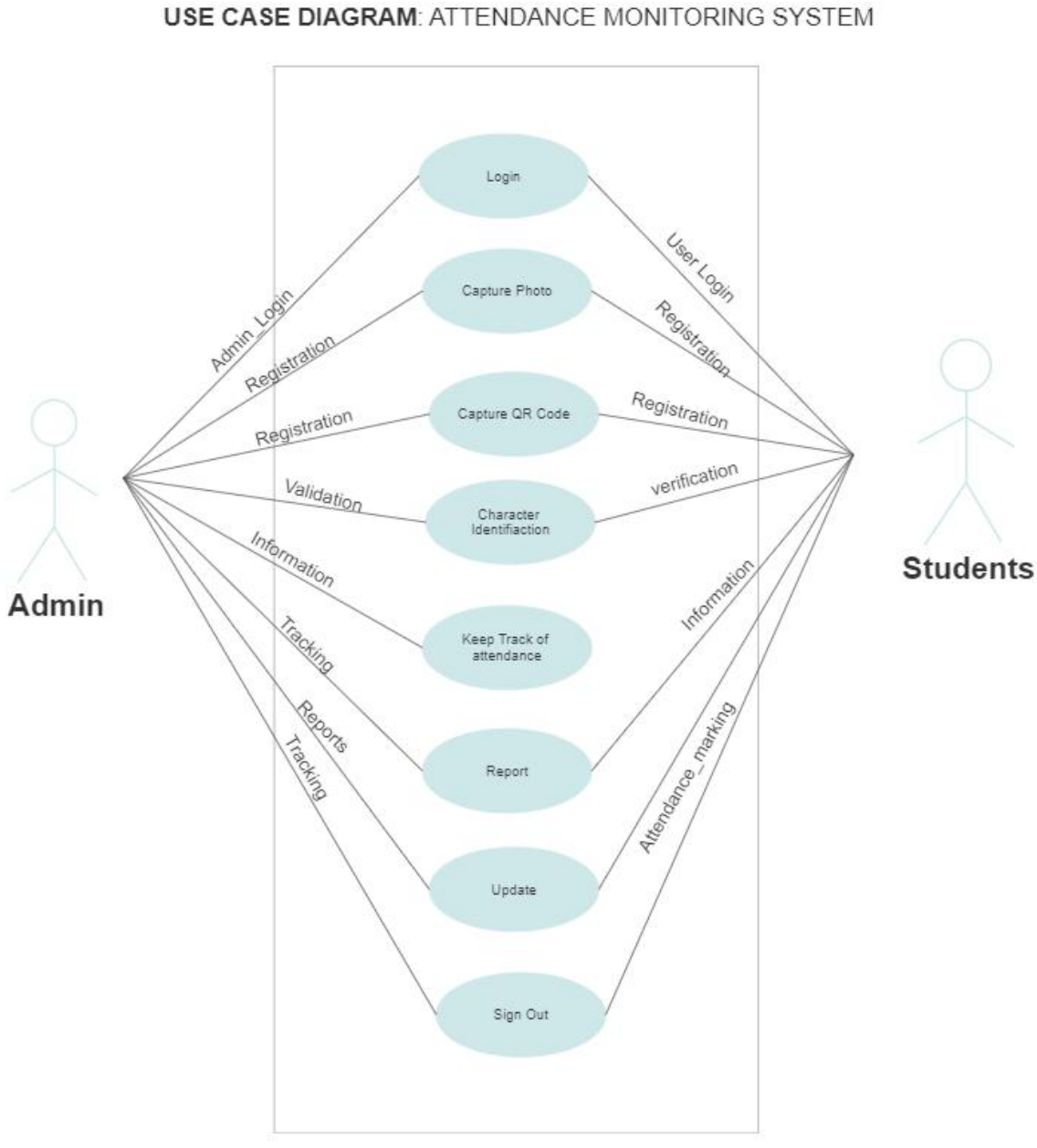
In educational institutes ,instructors manually take attendance in every class each day. They spend time to do that during class time. This Attendance System will help them do this process in an easy way. The main scope of this project is to make attendance process more organized in every class. This project will help instructors take the attendance automatically without spending much time during the class. It will provide the instructor who is/isn't present an early-warning of high levels of non-attendance through the Canvas page. There are also many benefits for students: they can manage their attendance, absences, and late walk-ins by checking the Canvas site. It makes it easier to have a clear picture of every student's attendance throughout the academic year.

2.2 **Definitions:**

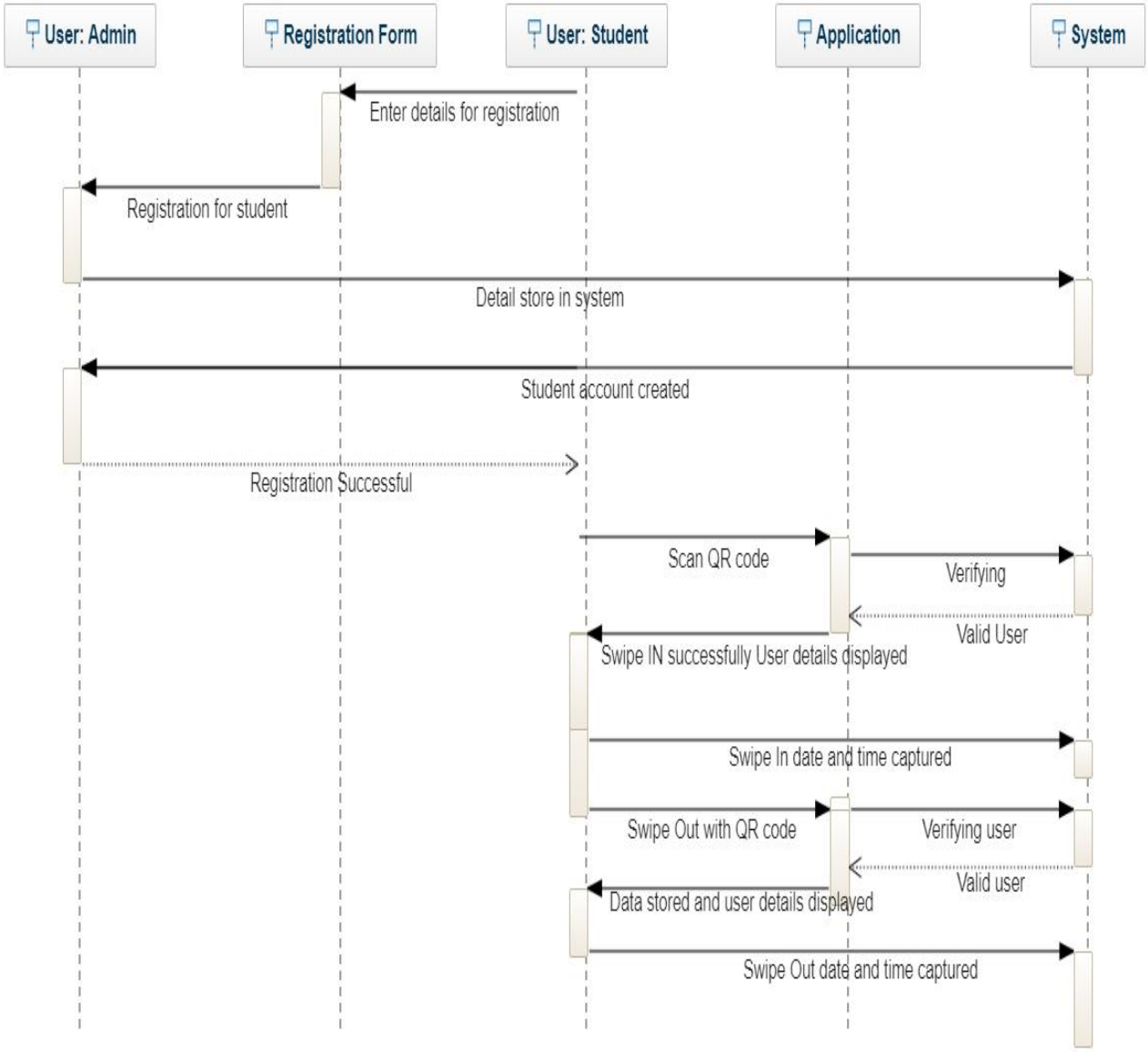
Users: This means students who will get the most befits of the system.
Faculty: Also, who has the top priority to get benefit for the system and they are the target actors of the system.

DIAGRAMS

3.1 **Use case Diagram**



3.2 **Sequence Diagram:**



TOOLS AND TECHNOLOGIES USED

4.1.**Raspberry Pi:**

The Raspberry Pi is a low cost, credit-card sized computer that

plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.

4.2.**Firebase:**

Firebase is a mobile and web app development platform that provides developers with a plethora of tools and services to help them develop high-quality apps, grow their user base, and earn more profit.

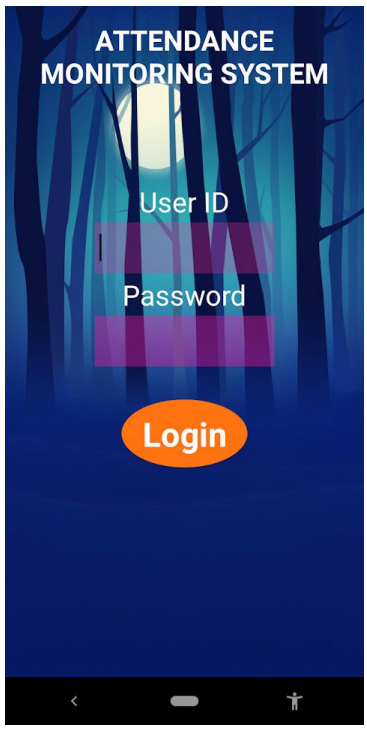
4.3.**Barcode/QR Code:**

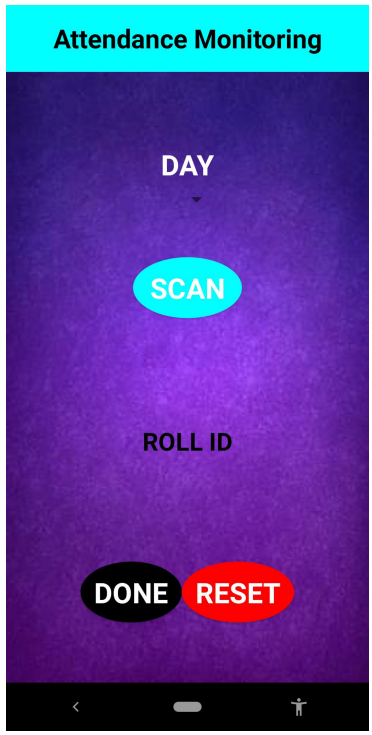
In this technology, students carry barcodes printed on their student cards, which at the time of presenting barcodes or QR Codes read using barcode reader, this presence is fast enough and does not ost a fortune, but this system has a drawback where barcodes can be easily duplicated by printed using a regular printer.

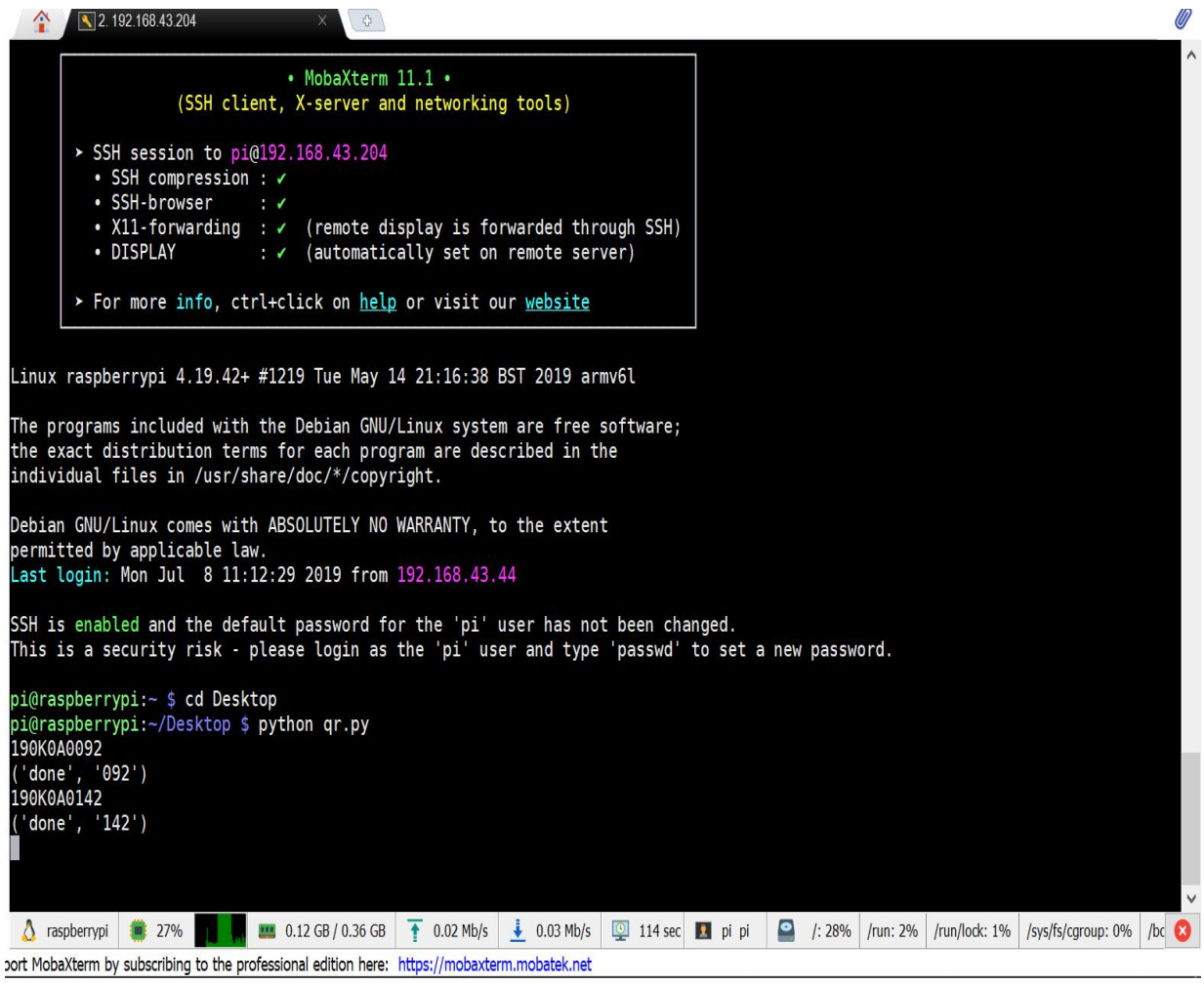
4.4.**MIT App Inventor**

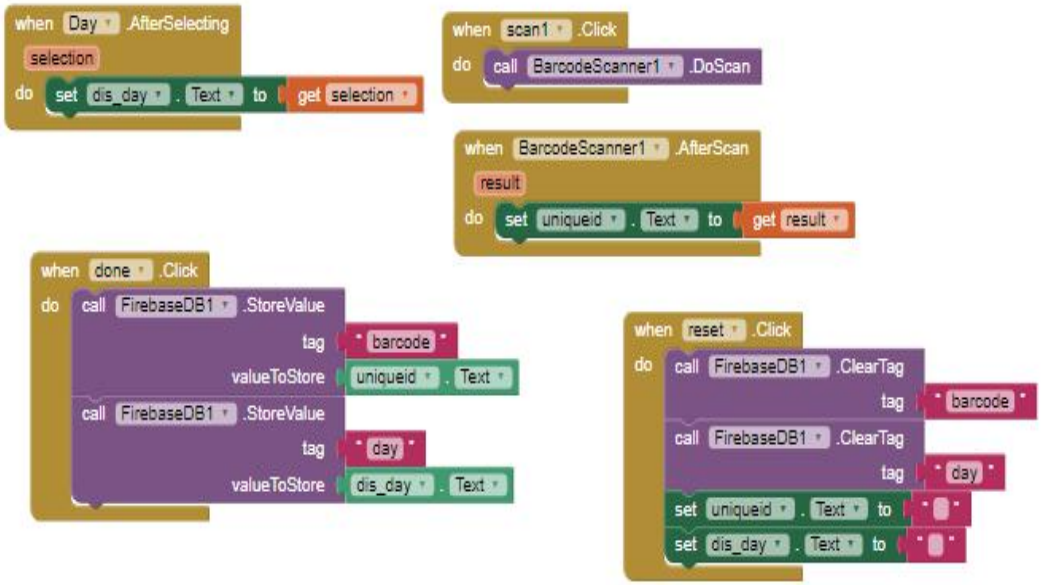
MIT App Inventor is an online platform designed to teach computational thinking concepts through development of mobile applications. Students create applications by dragging and dropping components into a design view and using a visual blocks language to program application behavior.

WORKING MODEL





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selection
do set dis_day . Text to get selection
when scan1 .Click
do call BarcodeScanner1 .DoScan
when BarcodeScanner1 .AfterScan
result
do set uniqueid . Text to get result
when done .Click
do call FirebaseDB1 .StoreValue
tag barcode
valueToStore uniqueid . Text
call FirebaseDB1 .StoreValue
tag day
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do call FirebaseDB1 .ClearTag
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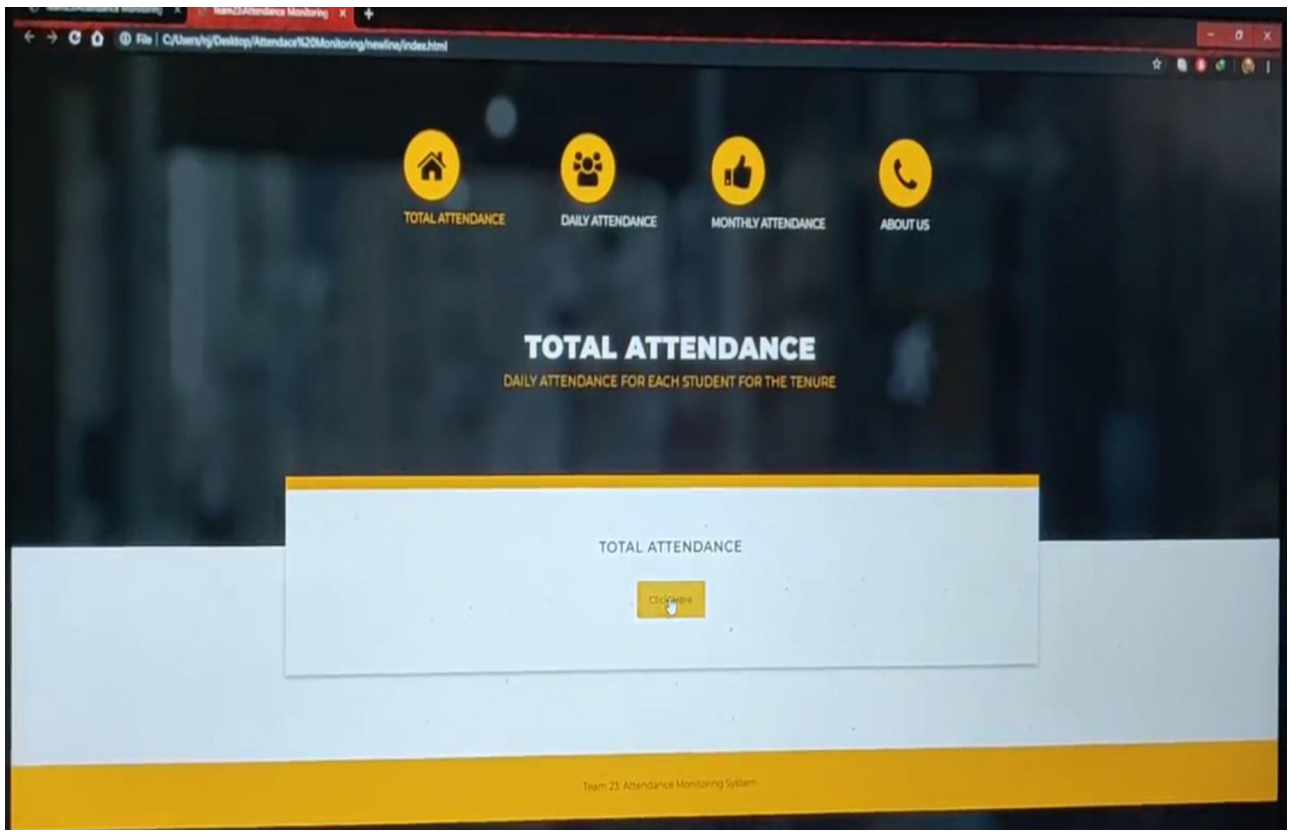
TOTAL ATTENDANCE
DAILY ATTENDANCE
MONTHLY ATTENDANCE
ABOUT US
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