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Automated Height, Weight and BMI Detector System

Prof. Bhagyashree Dharaskar[1], Bhagyesh Gabhane[2], Vaibhavi Pande[3], Amol Bonde[4], Sakshi Mallewar[5], Bhavesh Gokhare[6]
Computer Science and Engineering, Nagpur, Maharashtra

Abstract: ***Now a day, everything is getting digitized day by day. It decreases the extra efforts of human and make our lives easier and simpler. Project aims to automate the overall process to selection in bulk. This project is inspired by selection process for defense sector, police recruitments and sports selection in bulk. By taking a look at the selection process. It took a very long time for evaluations and to enter it into records with accuracy. This is how we got the idea to change the manual system into automated system. While going for an automated system, we found that the system is very expensive we worked on how to minimize the price and make it pocket friendly for user. To create an automated system with the advancement of technology we are using IOT. To detect the height, weight, BMI of a person with accuracy we will use sensors. The sensors will also scan and stores the person's data in the database in addition to this, our system is pocket friendly and affordable. We will also add age, name and other details of candidate in same thing. We are also taking help from some of the research papers available online.***
We are going to have 2 segments in this project:

1) ***Hardware***
2) ***Software.***

This project is inspired by selection process for defense sector, police recruitments and sports selection in bulk. By taking a look at the selection process, it is observed that the process includes the evaluation of all parameters is done manually and takes long time for completion of process of single candidate. It took a very long time for evaluations and to enter it into records with accuracy. This is how we got the idea to change the manual system into automated system. While going for an automated system, we found that the system is very expensive so we worked on how to minimize the price and make it pocket friendly for user. To create an automated system with the advancement of technology we are using IOT. The main purpose of this system will be to minimize the work load during physical test in selection process. To detect the height, weight, BMI of a person with accuracy we will use sensors. The sensors will also scan and stores the person's data in the database. In addition to this, our system is pocket friendly and affordable. We will also add age, name and other details of candidate in same thing.

I. INTRODUCTION

As we all know, digitalization makes process easy and efficient. It decreases the extra efforts of human and make our lives easier and simpler. Our project aims to automate the overall process to selection in bulk. This project is inspired by selection process for defense sector, police recruitments and sports selection in bulk. By taking a look at the selection process, we observed that the process includes the evaluation of all parameters is done manually and takes long time for completion of process of single candidate. It took a very long time for evaluations and to enter it into records with accuracy. This is how we got the idea to change the manual system into automated system. While going for an automated system, we found that the system is very expensive so we worked on how to minimize the price and make it pocket friendly for user. To create an automated system with the advancement of technology we are using IOT. The main purpose of this system will be to minimize the work load during physical test in selection process. To detect the height, weight, BMI of a person with accuracy we will use sensors. The sensors will also scan and stores the person's data in the database. In addition to this, our system is pocket friendly and affordable. We will also add age, name and other details of candidate in same thing. Our, this project is very low cost, extremely pocket friendly which gives full automation in the process of selection, is never practiced in such a low cost. Our main aim is to come up with full proof automated system, which will be helpful and time saving for the recruitment process of police force as well as defense services and sports selection with additional features of forming a database with the candidate details. We are referring many sites and articles for the same We are also taking help from some of the research papers available online. We are going to have 2 segments in this project, hardware and software. we have already successfully prepared hardware part of this model. now we are working on software part of this model. Various work fields are getting digitized day by day decreasing the extra efforts of human and make their lives easier and simpler.

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And this project aims to automate the overall process to selection in bulk. It took a long time for evaluations and to enter it into records with accuracy. This is how we got the idea to change the manual system into automated system. This project is inspired by selection process for defense / police & defense / police & another sports sector. In defense/police & other sports sector have to count height, weight and BMI on daily basis. Such places may be able to afford and find feasible to buy machines that use sensors and detect height, weight and BMI of a person. This system is designed such that any Person can use it easily. This system can further be converted into app so that it is accessible to all the people.

II. SOFTWARE DESCRIPTION

This system can be used in Defense / police and other sports sector to detect height, weight and BMI. This system will also store personal information in application. This system will save time and money of user and it is fully automated system The working of this software will be like, firstly the parameters shown on the display screen, which will be sent to the server side when the candidate will press the data logger button. The data present in server will be in unmap format. When there will be request for data, it will make the unmapped data, then it will be shown on the admin's side then the admin will map the data with the respective user. then after the user can see their data on the user side of the application. Considering today's technology, we had successfully made the hardware part of our project. Now we are going ahead with software part. Basically, we are going to fetch data from the hardware & show it in our application. By making this, users can see their information in their mobile. This will help users to be updated with their data. When the candidate presses the data logger button, the data will be captured & send to the server within micro seconds & stored there in unmapped form. Then the data will be retrieved from the server query is made. Hence, the data will be shown to the respective users in the application.

III. CHARACTERISTIC

This model has some characterizes they are listed below: -

1) By considering the output data, we got from the hardware, we got the idea of making software part of this project.
2) There will be 3 side of the software part
a) Super admin (there will be only one administrator).
b) Admin
c) User side

3) The candidate standing in the frame, will click on data logger button, then the data will go to the server and after processing, the data will be displayed in the application.
4) The task of
a) *Super Admin:* Mapping of IoT data. / Add and remove the user and its related data. / It has the authority of making the admins.
b) *The task of ADMIN*: All the tasks of admin will be same as super admin except creation of admin.
c) *User Side:* Candidate can view his/her repot. / Also, he/she can update their documents.

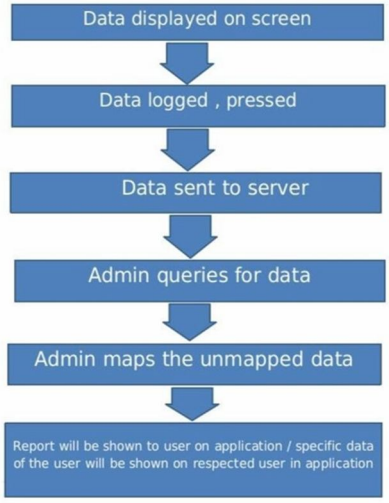
IV. REQUIREMENTS OF SOFTWARE

1) *Embedded C:* Embedded C is a set of language extensions for the C programming language by the C Standards Committee to address commonality issues that exist between C extensions for different embedded systems. Embedded C programming typically requires nonstandard extensions to the C language in order to support enhanced microprocessor features such as fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations. The C Standards Committee produced a Technical Report, most recently revised in 2008 and reviewed in 2013, providing a common standard for all implementations to adhere to. It includes a number of features not available in normal C, such as fixed-point arithmetic, named address spaces and basic I/O hardware addressing. Embedded C uses most of the syntax and semantics of standard C, e.g., main () function, variable definition, data type declaration, conditional statements (if, switch case), loops (while, for), functions, arrays and strings, structures and union, bit operations, macros, etc.
2) *MySQL:* The database structure is organized into physical files optimized for speed. The logical data model, with objects such as data tables, views, rows, and columns, offers a flexible programming environment. You set up rules governing the relationships between different data fields, such as one to one, one to many, unique, required, or optional, and "pointers" between different tables. The database enforces these rules so that with a well-designed database your application never sees

data that's inconsistent, duplicated, orphaned, out of date, or missing. The "SQL" part of "MySQL" stands for "Structured Query Language." SQL is the most common standardized language used to access databases. Depending on your programming environment, you might enter SQL directly (for example, to generate reports), embed SQL statements into code written in another language, or use a language-specific API that hides the SQL syntax.

3) *Android Studio:* Android Studio is the official integrated development environment (IDE) for Android application development. It is based on IntelliJ IDEA, a Java integrated development environment for software, and incorporates its code editing and developer tools. To support application development within the Android operating system, Android Studio uses a Gradle-based build system, Android Emulator, code templates and GitHub integration. Every project in Android Studio has one or more modalities with source code and resource files. These modalities include Android app modules, Library modules and Google App Engine modules.
4) *Code Igniter:* Code Igniter is an application development framework, which can be used to develop websites, using PHP. It is an Open Source framework. It has a very rich set of functionality, which will increase the speed of website development work. If you know PHP well, then Code Igniter will make your task easier. It has a very rich set of libraries and helpers. By using CodeIgniter, you will save a lot of time, if you are developing a website from scratch. Not only that, a website built in CodeIgniter is secure too, as it has the ability to prevent various attacks that take place through websites.
5) *Linux Server:* A Linux server is a server running a variant of the Linux open source operating system (OS). It is designed to handle the most demanding business applications, such as web services and databases. Linux servers provide a strong foundation for complex, enterprise-level data centers and workload environments, ranging from bare metal to virtual machines, and containers, including private or public clouds. They can also guide your digital transformation journey and cloud app development, with the capability to increase productivity, deliver services faster, and incorporate software innovations like cloud, containers, and configuration automation.
6) *Angular Ionic Framework for app Development:* Ionic is an open source UI toolkit for building performing, high-quality mobile apps using web technologies — HTML, CSS, and JavaScript — with integrations for popular frameworks like Angular, React, and Vue. Get started building by installing Ionic or following our First App Tutorial to learn the main concepts. Ionic focuses on the frontend UX and UI interaction of an app — UI controls, interactions, gestures, animations. It's easy to learn, and integrates with other libraries or frameworks, such as Angular, React, or Vue. Alternatively, it can be used standalone without any frontend framework using a simple script includes. If you'd like to learn more about Ionic before diving in, we created a video to walk you through the basics.
7) *PHP as server-side Scripting Language:* Originally PHP was short for "Personal Home Page" but over time it evolved to include that in its recursive current expansion "PHP: Hypertext Preprocessor". Server-side scripting languages interpret scripts on the server side rather than client-side (like JavaScript).Doing so provides a customized interface for each user and adds functionality beyond what HTML can offer. Scripting languages are programming languages that are interpreted rather than needing to be compiled before execution.

V. FLOW OF SOFTWARE



VI. LITERATURE SURVEY

We, all the team members also visited the Commissioner of Police office & one of our team members had undergoes through the recruitment process of police, Nagpur, for survey related our project.

SR. NO.	TITLE	JOURNAL	ABSTRACT	METHOD USED	ACCURACY RESULT OBTAINED
1.	A LITERATURE SURVEY OF ANDROID BASED EDUCATIONAL APPLICATION	Journal of Emerging Technologies and Innovative Research	In this paper ,a survey has been performed on the previous research work done on Android-based educational applications on the basis of different parameters. This survey paper performs a clear analysis of the techniques and algorithms which yield more efficient results.	Information about how to develop a android based application.	Using the related information from the paper we have accurately made a application.
2.	Development of Code igniter-Based E-OFFICE Application	COS International Conference on Research and Academic Community Services (ICRACOS)	The E-OFFICE Application is a web based application designed to handle the management of electronic correspondence and has a special function to record all correspondence activities that enter and exit from outside the agency.	How to develop a code igniter-based E-Office application .	We have successfully used the method.
3.	IONIC FRAMEWORK	International Research Journal of Engineering and Technology (IRJET)	Ionic framework is an SDK i.e., software development kit. It is available as open-source tool. Ionic provides numerous functional facilities and tools already built-in to cultivate mobile application for heterogeneous platforms.	This paper gives the information about how to use ionic framework with other things for application development.	From the information in this paper we have successfully developed application.
4.	Database design with MySQL	Journal of Technology Research	A brief introduction about MySQL database.	How to use database in backend.	We have successfully used .
5.	CODE PORTING IN EMBEDDED SYSTEMS: A CASE STUDY	M¨alardalen University School of Innovation Design and Engineering V¨aster˚as, Swedens	A brief study about embedded system.	Extracting the data from the Hardware & fetching it to server .	We have successfully extracted the data used .

VII. ADVANTAGE

1) The system will prove very beneficial to detect height, weight and BMI.
2) This system is less time consuming.
3) It's easy to access.
4) It is always available.
5) System is very user friendly; anyone can use easily.
6) You can also access your old document.
7) This system saves our effort and time.

VIII. APPLICATION

This system can be used in Defense / police and other sports sector to detect height, weight and BMI. This system will also store personal information in application. This system will save time and money of user and it is fully automated system. This system can be used in Defense / police and other sports sector to detect height, weight and BMI. This system will also store personal information in application. This system will save time and money of user and it is fully automated system.

This system will be helpful and time saving for the recruitment process of defense / police & defense / police & another sports sector. This system will detect height and weight of a person and calculations of BMI will be done and whole parameters will be saved and displayed on led display. This project is very low cost which gives full automation in this process. It is never practiced in such a low cost. It is not only affordable but also has an easy mechanism to use and can be used in various fields such as defense sector, police sector and other sports sector to measure height, weight and BMI of a person.

The data will be stored in the database & also be displayed in the application in the report format. The user can see only his/her data at user side of the application. In the admin's side the data data mapping will be done. At the Super admin side, the creation & deletion of the admin will be done.

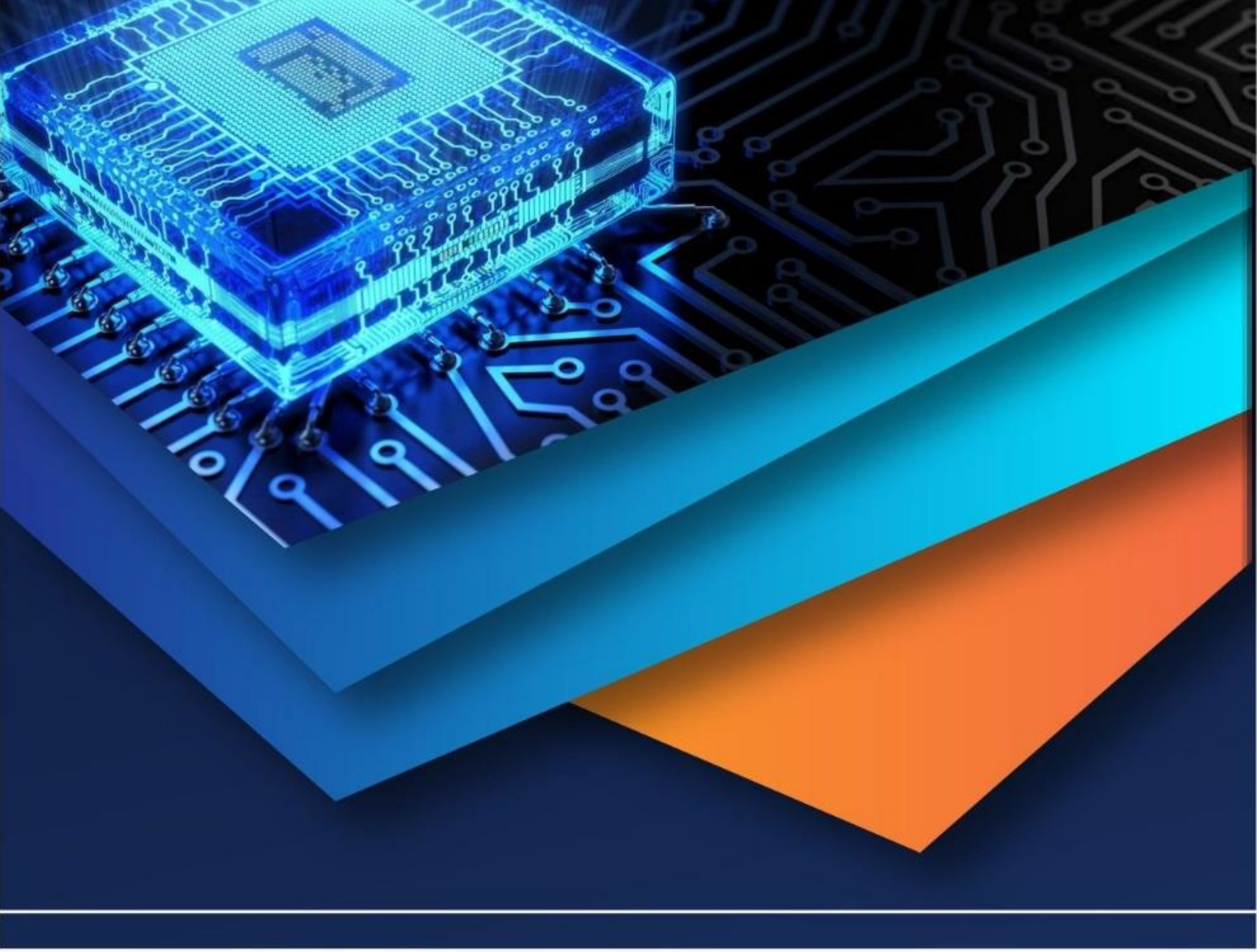
IX. CONCLUSION

This system will be helpful and time saving for the recruitment process of defense / police & defense / police & another sports sector. This system will detect height and weight of a person and calculations of BMI will be done and whole parameters will be displayed on screen and saved in the database, the report of the respective users will be shown in the application. This project is very low cost which gives full automation in this process. It is not only affordable but also has an easy mechanism to use and can be used in various fields such as defense sector, police sector and other sports sector to measure height, weight and BMI of a person

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