

# Design and Implementation of a Smart Voting System

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## Introduction

In recent days, during general election in schools and colleges there is illegal events before, during and after casting the vote at the ballot booth that leads to fighting, destroying goods and other infrastructure that would lead to many expenses due to the destruction occurred where sometimes people may be injured or even lost their lives

Hence, the point of discussion here was to design and construct the prototype of smart voting system based on using biometric module and a computer. The system will be programmed where the fingerprint of voters will link to his or her information. This system uses finger print module with arduino and computer to formulate the voters' information and then the process of smart voting to elect the candidate.

The main purpose of this project was to design and implement a smart voting system adaptive to situational condition of Ben Bella Secondary School and other academic institutions during the time of general election. The specific objectives of this study were to identify and design the smart voting system prototype with situational adaptive surrounding, formulate the smart voting system based on data obtained from the designed prototype and evaluate the performance of the system.

## Method

The main instruments of the data collection were experiment and observation around the study area focused on the objectives of the study. Primary data obtained from the field was analyzed both qualitatively and quantitatively and hence gave insight to the problem.

The findings of the study suggested that the system is simple, easily to be implemented and simple to troubleshooting the system with less cost and manpower. The number of students that agreed on the use of this smart voting system which uses less time to implement during the election as well as to declare the elected president and no more pollution due to scattering of ballot papers around the school campus.

Data was collected statistically by counting the number of presidential votes casted by the students and through the electoral committee of Benbella declared the results.

## Results

This system is simple, easily to be implemented and simple to troubleshooting the system with less cost and manpower.

- The study shown that, the number of students that agreed on the use of this smart voting system in Benbella Secondary School is at a great number and thus can be applied in any school/academic institutions.
- The system uses less time to implement during the election as well as to declare the elected president and no more pollution due to scattering of ballot papers around the school campus.

## Conclusion

This study concludes that this design may be installed and implemented around academic institutions that will reduce the manpower and maximize the National income and paperless system. This project will be a useful part of designing, planning and installing this system which will reduce and minimize overcrowd, avoid duplication of votes, engage on privacy, environmental friendly and verifiability of the election. Improving the privacy of the voters' information so that people can not get access to the information and bring about manipulation was achieved.

The study recommended that more devices can be increased by adding the webcam camera to the system that will enable to recognize the face of the voters after casting the vote and only registered person can vote and only once. Thus webcam camera may be interfaced to the system for face recognition after someone casts his/her vote precisely.

We hoped that this design of the smart voting system using finger print module may be installed and implemented around academic institutions that will reduce the manpower and maximize the National income and paperless system. This project will be a useful part of designing, planning and installing this system which will reduce and minimize overcrowd, avoid duplication of votes, engage on privacy, environmental friendly and verifiability of the election. Improving the privacy of the voters' information so that people can not get access to the information and bring about manipulation was achieved.

## References

- 1.B. L. Theraja, (2005). Fundamentals of Electrical Engineering and Electronics, New Delhi, India.
- 2.Ashish Dixit and Anand Chopra (2010). Electronics Engineering New Delhi, India.
- 3.Websites: [www.sciencecentre.net/projects](http://www.sciencecentre.net/projects)

## Acknowledgments

Our strong appreciation should go to our supervisor, Abdu Soud Mohamed, who took time in completing of this study. Also our thanks should go to the school management, Mr. Mohamed Kassim and Mr. Hassan Mustafa for their cooperation. Finally, we appreciate the supports of students at Benbella Secondary School.



2.0 METHOD  
The methods used were experimental and observation.  
2.1 Experimental procedures were divided into four phases  
a) Hardware design and collecting materials.  
The device was designed using hardware that can be seen diagrammatically as follows;



Figure 1 (a): Hardware design

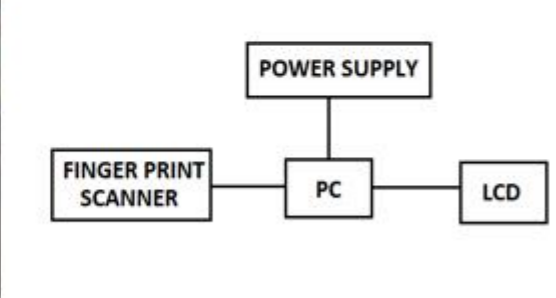


Figure 1 (b): Hardware interfacing

b) Designing the process of the smart voting system.  
The system was designed in various steps/pages as seen in the figures below;

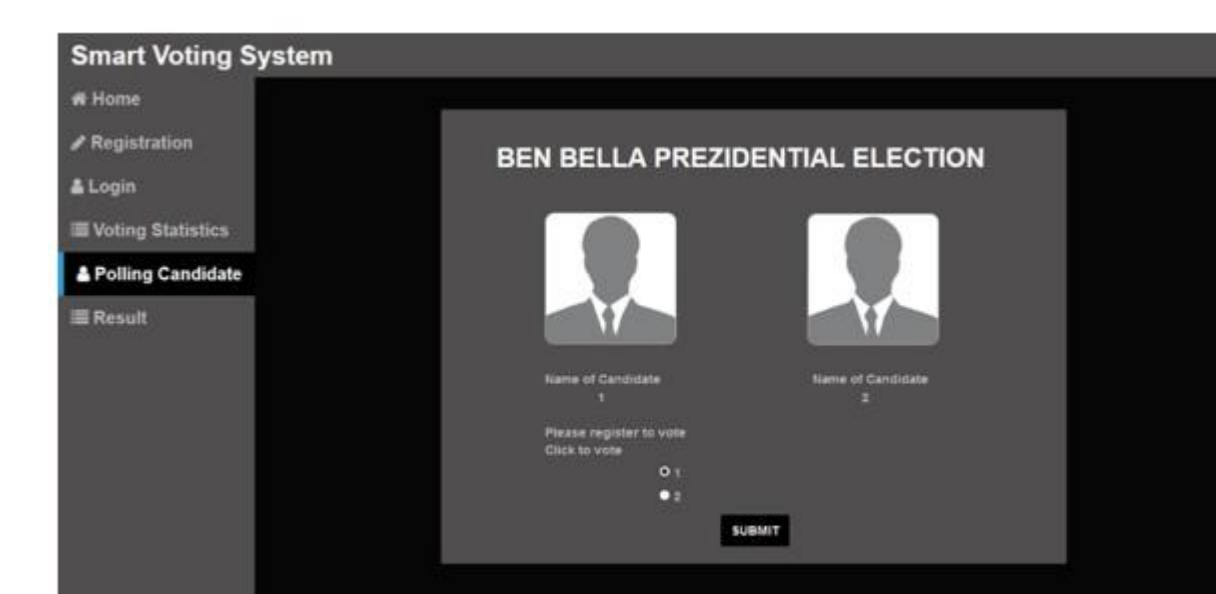


Figure 2 (d): Polling page



Figure 4 (a): Benbella electoral committee



Figure 4 (b): The elected President of Benbella