

MICROCONTROLLER AND VOICE BASED ALERT SYSTEM FOR BLIND PEOPLE WITH GPS ENABLED LOCATION IDENTIFICATION

ABSTRACT

Blind students all over the world need guidance to navigate around the city or university campus. It is estimated that 374,400 visually impaired students attended colleges at some point in the United States alone. With the rapid technological advancement, new opportunities are emerging to make life easier for blind students.

Motivated by the problem, it is a prototype and evaluates a smart guidance system to help blind students navigate from and to classrooms. To design such a system, the design team had to exercise several design steps typically involved in an engineering design process. The steps include literature research, requirements specification, solution brainstorming, system functional decomposition, functional modeling, prototype implementation and testing. The designed system consists of two fully integrated modules; a mobile application and a smart cane.

The blind student interacts with the mobile application using voice commands. The blind student can instruct the mobile application to navigate him/her to a desired destination (eg. classroom). On the other hand, the cane helps the blind student to avoid obstacles and alerts him/her when walking off track. The cane and the mobile application are synchronized via Bluetooth technology. The system was modularly designed, tested and finally integrated together. Testing exhibited promising results and proved to be beneficial to such an important sector of the society.

EXISTING SYSTEM

- Blind person daily encounters many difficulties such as walking on the road, finding right path and taking a bus.
- Some blind people prefer using guide dogs and others prefer a real person to guide them instead

DISADVANTAGE

- Blind people navigate their way with the need of a guiding person or a pet.

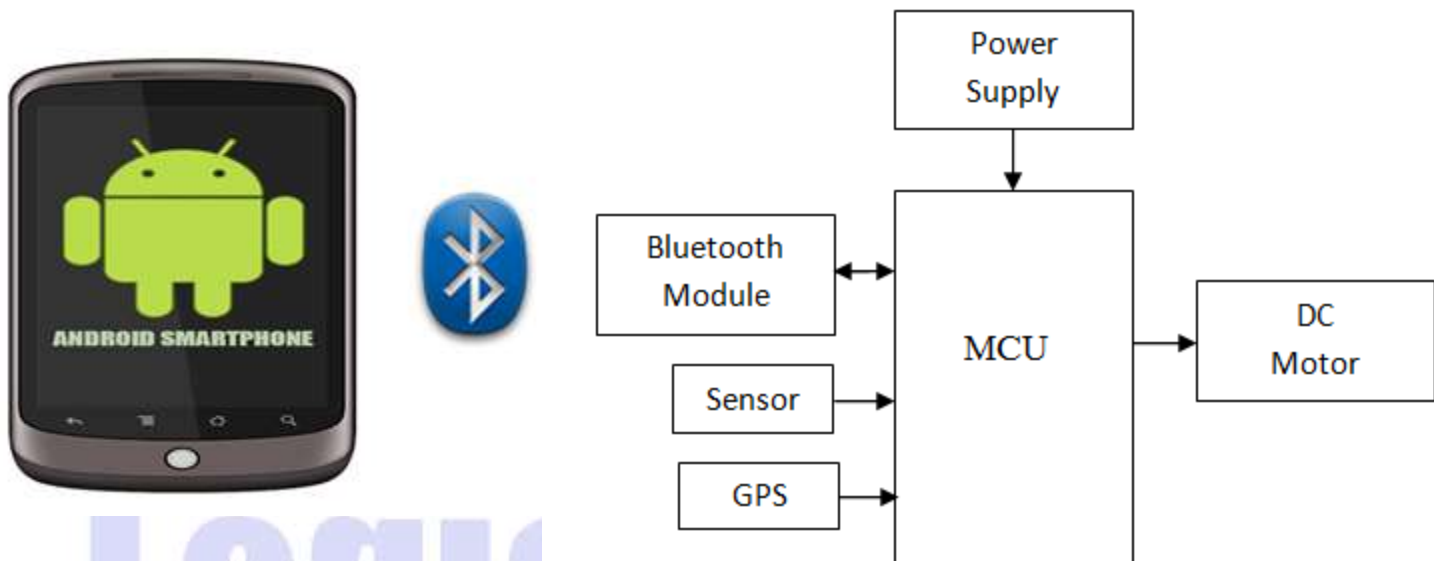
PROPOSED SYSTEM

It is a prototype and navigation system to help blind students navigate to and from classrooms. The student should communicate with the system through voice commands. Additionally, the system should be safe to use.

ADVANTAGE

- Blind people navigate their way without the need of a guiding person or a pet.
- As a measure of performance, the response time should be less than 10 seconds.
- The system should be available upon demand.
- Due to the importance of the user's location, accuracy should be within (+/-) 5 meters of the target.
- The system should be able to operate for 10 hours.
- Because blind people will use the system, the system should be easy to learn and should not take more than an hour to learn how to operate and use.

BLOCK DIAGRAM



HARDWARE REQUIREMENTS

- Bluetooth module
- Sensor
- Micro controller
- DC motor
- Power supply

SOFTWARE REQUIREMENTS

- MCU COMPIERS
- PROTEUS SOFTWARE

MICROCONTROLLER may ATMEGA,8051,PIC OR Arduino

