

# FOSS for Cause

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**Abstract-** The utilization of the computer and web technology has given rise to many innovations in the world community including education. Free Open Source Software (FOSS) are one of these innovations. The business community have used the advantages of FOSS to benefit their institutions. Compared with Proprietary (Closed Source), FOSS proves to be lot better. Most of the Open-source software is free to use, easy to distribute and modify. It has lower costs, and in most cases this is only a fraction of the cost of their proprietary counterparts and thus can be counted as its advantage. This paper gives a brief description about open source hardware and open source software. Android Wallet and Eye Stick Navigation System are two projects based on them. A brief summary of them is given in this paper.

**Index Terms-** FOSS, Android, Arduino, Eye Stick, Navigation, Barcode, Database.

collaborating to create, and improve upon, a flawless website framework.

Many software development companies use a proprietary, framework for the websites they create. FOSS software, such as Word Press and Drupal, were developed by thousands of talented developers. So what would you like to have, a software package created by a handful of developers, or a software package created by thousands of developers? FOSS software promotes software reliability and quality by supporting independent peer review and rapid evolution of source code. A proprietary can never match the speed of FOSS Software review and development.

*B. Not Bound to a Single Development Company:*

With thousands of developers already having 100% knowledge Of your software framework, any FOSS friendly company can work on your website. i.e You don't have to be bound to a single development company because you are stuck using their proprietary software.

## I. INTRODUCTION

Free Open-source software (FOSS) is computer software with its source code made available and licensed with a license in which the copyright holder provides the rights to study, change and distribute the software to anyone and for any purpose. Open-source software is very often developed in a public, collaborative manner. So you would think that Open Source Software are free to use, But it's not, many companies are trying to give it a new meaning.

Open-source software is more secured as the code is accessible to everyone. Anyone can fix bugs as they are found, and users do not have to wait for the next release. The fact that is continuously analyzed by a large community produces secure and stable code. FOSS is not dependent on the company or author that originally created it. Even if the company fails, the code continues to exist and be developed by its users. Also, it uses open standards accessible to everyone; thus, it does not have the problem of incompatible formats that exist in proprietary software.

Lastly, the companies using open-source software do not have to think about complex licensing models and do not need anti-piracy measures like product activation or serial number.

## II. MAJOR BENEFITS OF FOSS

*A. Public Collaboration:*

One of the major benefits of FOSS software is the public collaboration behind each project. Most FOSS projects are created by tens of thousands of programmers all

C. *Auditability:*

Proprietary software forces its users to trust the vendor when claims are made for qualities such as security, freedom from vulnerabilities, adherence to standards and flexibility in the face of future changes. If the source code is not publicly available those claims remain simply claims. By publishing the source code, authors make it possible for users of the software to have confidence that there is a basis for those claims.

Now taking Open Source technology in practice we are developing two projects for our final year using open source software and open source hardware respectively.

### III. OPEN SOURCE SOFTWARE

Open-source software (OSS) is computer software with its source code made available and licensed with a license in which the copyright holder provides the rights to study , change and distribute the software to anyone and for any purpose. Open source does not just mean access to the source code. The distribution terms of open source software must also comply with free redistribution. Open source software includes the most popular Android system. Android has become the world’s most popular mobile OS. Android powers more than a billion phones and tablets around the world. It’s customizable, yet easy to use.

### IV. ANDROID WALLET

#### A. INTRODUCTION

Android Wallet is a technology based on two open source software products: Android and MySQL. Android Wallet is a technology that would digitize our shopping experience. Not only would it minimize our risk of theft, but it would also assure the user that the product he is purchasing is sold at its actual Maximum Retail Price (MRP). An Android Wallet is basically an Android application that works on the concept of deducting amount from user’s Android based mobile phone.

#### B. IDEA BEHIND ANDROID WALLET

The main objective of Android Wallet is to make use of open source software for the purpose of digitization. The project would enable an eco-friendly world by reducing the use of cash for payment. Android Wallet would help the user to purchase goods with less chances of overpricing of commodities. The idea also comes from the time consumed at malls for payment. Android Wallet would reduce the queues to a large extent.

### C. FEATURES OF PROJECT

1. 24x7 availability
2. Greener World.
3. Digitalization
4. Lower Overhead For user and shopkeeper

### D. FLOWCHART

The User flow chart is seen in the following figure:

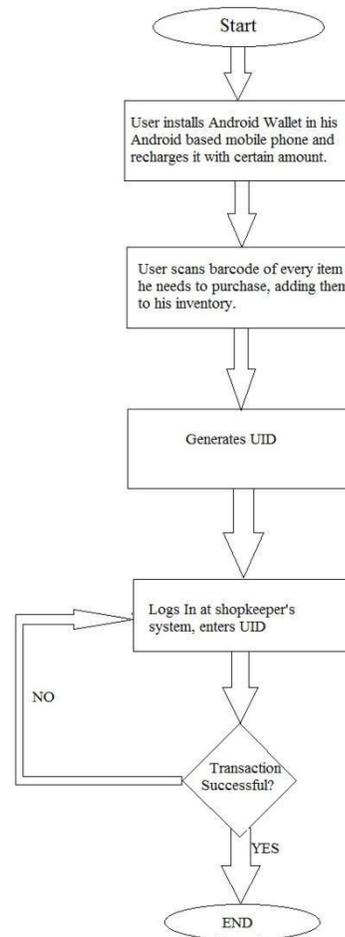


Fig 4.1: User Flowchart of Android Wallet

### E. METHODOLOGY

Android Wallet is an effective application that works on the principle of transferring amount from your mobile balance for payments. The Android Wallet can be useful when payment for goods is urgent and the cash user has is

insufficient. The working of Android Wallet is quite simple from the user's perspective. Every time a user needs to purchase an item, the user will need to scan the barcode on that item from his Android mobile. When scanned, the item would be included in an inventory in the Android Wallet application. Multiple items can be added to the inventory for purchase. The user then simply has to click on the GENERATE UID button. This would generate a unique number and the entries will be sent to the database. The user will then login at the shopkeeper's machine in the shop. The shopkeeper would enter the generated UID and the amount will be deducted from the amount present in Android Wallet. Android Wallet is rechargeable and the amount will be deducted from the balance in phone. The recharge can be done by simply clicking a few buttons in the application and entering the amount and password. The UID, if not used, can be saved for future use. You can also request for the history of your transaction by use of Android Wallet. Thus Android Wallet would help us towards a world with easier and digital transactions.

### V. OPEN SOURCE HARDWARE

Open source hardware is hardware whose design is made publicly available so that anyone can study, modify, distribute, and sell the design or hardware based on that design. Arduino is a microcontroller which is used to control other devices. It has its own memory and processor to control other peripherals.

### VI. EYE STICK NAVIGATION SYSTEM

Name of my project is Eye Stick Navigation System. Eye Stick navigation system make use of ultrasonic sensors interfaced with Arduino kit, which is programmed in such a way that the sensors detects the change in surface level and presence of any obstacle in front of bearer's path. Let us see our project in detail.

#### A. INTRODUCTION:

" Eye Stick" consists of 4 Ultrasonic sensors fitted to it. An ultrasonic sensor fitted at the bottom of the stick will detect holes or any other abnormality on the way of the blind man and will correspondingly provide proper indication in absence of smooth surface.

Likewise set of three ultrasonic sensor will be fitted on the front side of the stick, and will help in detection of obstruction or dead end on the way of the blind man. In the presence of obstruction it will provide an alert to the user. Both alert patterns will differ from each other thus giving the bearer what alert it is. The project will also consist of a wireless camera and a GPS tracker that will help the user to transmit live stream of the scene in front of him and can ask for a distant help (example Identification of any object) from the person monitoring it whereas the GPS tracker can be used

by any of the family member to track the location of the bearer.

### B. IDEA BEHIND EYE STICK NAVIGATION SYSTEM

The main objective of this project is to make use of open source hardware to solve some of the problem of the blind and visually impaired people. This project will enable the bearer to walk freely by reducing the risk of getting hurt by any obstacle in their path. This project will also enable the bearer to climb steps freely. Along with these Problems, It will also enable others to track the location of the bearer.

### C. FEATURES OF PROJECT

- Detection of obstacle
- Detection of change in Floor level
- Transmission of live Stream
  
- Tracking User

### D. FLOW CHARTS

#### a) Ultrasonic Sensor for Obstacles

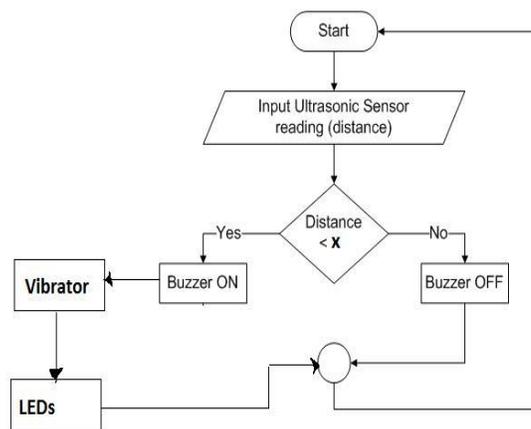
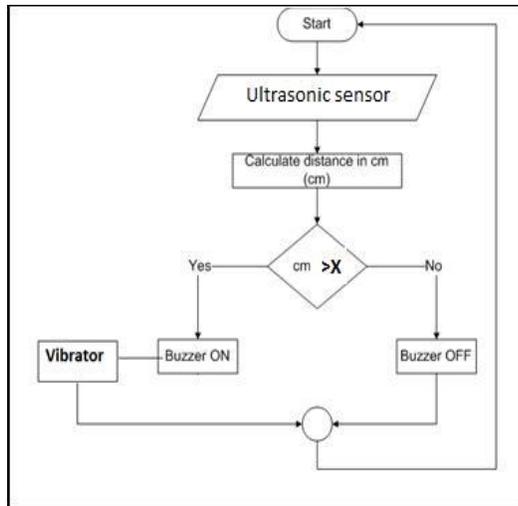


Fig 6.1: Flow Chart of Ultrasonic Sensor for Obstacles



**Fig 6.2 : Flowchart of Ultrasonic Sensor for detection of surface level**

### E. METHODOLOGY

Our project is going to work on the principle of Ultrasonic waves. As shown in the flow chart above. The Ultrasonic sensor will detect if there is any object in front or not and accordingly they will do their function and will trigger the vibrator. Similarly the function of other Ultrasonic sensor will be coded in such a way that if the distance between the ground and the sensor increases to a value more than x (Value of x mentioned in coding) then it will trigger the vibrator as well as the LED and this will notify the bearer that there is a change in floor level. Both the Pattern will differ from each other.

### VII. CONCLUSION

Considering the above points and the references, it's very easy to determine the winner, FOSS. FOSS has also helped the education field by providing an excellent platform for students to develop their projects. And it can also be predicted that within next few years it will gain more popularity compared to current status.

### ACKNOWLEDGMENT

The contents of the paper fall under the domain of open source projects. The idea put up here are fresh and do not bear any resemblance in term of working and names with any other such project concepts.

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