Use of Android Apps to nurture Urban Ambassadors on Medicinal Plants
(Neighborhood Medicinal Plants of Bangalore City version 0.4.0)

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Abstract:

The project on Neighborhood Medicinal Plant of Bangalore App presents a user friendly interface for android mobiles system that introduces school children of Bangalore city to 330 common medicinal plants and its connection to health traditions. These are native and exotic plants of Bangalore city which are seen as Avenues, landscaping elements, home herbal gardens, religious premises, on tank and lake bunds, pavements etc. The user will be able to know the botanical names, common names in various languages, family, habit, medicinal uses, description, appearance, and other details, and will be able to view images as well. The application provides users to search by "life forms" or "habit" categories of medicinal plants, i.e. herb, shrub, tree and climber. On clicking a particular category, the list of plants belonging to the selected habit would be displayed.

The Neighborhood Medicinal Plants App (0.1.0 to 0.4.0 version) is a new, self-contained product intended for use on the Android SDK and Java Development Kit. At the moment, this is uploaded in Google play store and can be downloaded and used after registration on phones/tabs with Android Version 3.0 (Honeycomb) and above. This App requires space up to 3MB on Phone/SDCard.

This App is specific to Bangalore city plants. This informative App can be one of the tools in Environmental Education or Nature Education for middle and high school students of all syllabuses. This provides space to write their field observations related to locations, cultural uses, ecological observations etc and share it to larger groups.

Introduction:

In order to encourage middle and high school students in Urban Bangalore about their surroundings and its plant resources, connections to life style, Neighbourhood Medicinal Plants of Bangalore city project was initiated by FRLHT-TDU, Bangalore in 2008. In this project, various syllabus on biology, environment education and biology teachers were consulted to design CDROM (Suma, Vijay Barve, Ved, & ..., 2008) and educational materials for creating awareness programs to students. Keeping pace with technological growth CDROM version got graduated to App version. This is easy to handle, retrieve data and share information.

The Neighbourhood App (Nikhil Desale et al., 2015), is simple to use with one click. It has two main search options viz Life form/habit wise search and common search. Life form search has 4 options such as Herb, Shrub, Tree and Climber. Common search can be done for scientific name or common names in 6 languages, i.e. English, Hindi, Kannada, Sanskrit, Tamil or Telugu or any related search. Any of these searches leads to listing of plants with a thumbnail view of plant images. On clicking any of the plant name, one can view profile of a plant with associated information such as botanical name, common names in 6 Indian languages, specific distribution and location of a species in Bangalore city, medical system tag (Ayurveda, Siddha, Unani, Tibetan/Sowa-Rigpa, Folk), classical medicinal uses or folk uses with references. This App is linked to ENVIS website (Ved et al., 2015), where more information on the species can got including its trade, threat status, herbarium images, digital atlas and many other internationally known websites through API Extractions. This App provides facility for sharing information on their field observations related to plants. Additionally if user wants more information, they are connected to biodiversity related sites like IBP, GBIF, IUCN, Wikipedia and etc.

The contents of this App are adopted from Neighborhood Medicinal Plants CD-ROM version 1.0, 2008, developed by FRLHT (Suma et al., 2008). The App contents are well researched & authenticated based on feedback obtained from -high school teachers and students.

Methodology/approach:

App development: This App has been developed for use in Android^{TM} OS 3.0 and above. The User Interface has been developed using Android SDK in Java Development Kit (JDK). The Database is stored as MySQL, and is retrieved using JSON Parser.

App validation: We validated the App in 2015 using two mobile devices powered by Android 4.4 Motorola 1St G (Touch screen Smartphone) and an Android Emulator Tablet BlueStack (10-inch tablet).

The flow of the App (with details) is as follows:
1. Fist Look at the App.
Fig. (1) & (2) shows various 'Habits' from which to choose OR feed the botanical/local names directly.
2. Plant List Page.
Fig. (3) Shows the list of plants according to the category (in this example, tree). The list contains an image, Botanical name and family.
Fig. (4) Shows the list of plants if an name is typed in the text box. In this case, **Tulsi** is typed.
3. Plant Details Page.
Fig. (5) Shows full details of selected plant with image.
Fig. (6) Shows the large views plant image
Fig. (7) Shows comments and the option to add.

4. ENVIS Plant Profile Page
When user seeks more details of a particular plant, then plant profile page of ENVIS website (Ved et al., 2015) is displayed**.**

Results and Discussion:

After launching the App on Google play store we observed that the usage has increased. Now we have 1000+ users based on December 27th 2015. Fig. (9) shows the total installs by the users from 25[th]March 2015 to the 27th December 2015. Though App is designed for Bangalore city, it also has users from India and other countries like United States, Philippines, Malaysia, Sri Lanka, Germany, Canada, Brazil, and much more. Fig. (10) shows with Graphical representation of users in percentage (No. of users). We got the positive feedback from the users with the 4.52/5 App ranking from 23 total users out of which, 7 have written reviews as well. Fig. (11) shows the current Rating on Google play and some important reviews.
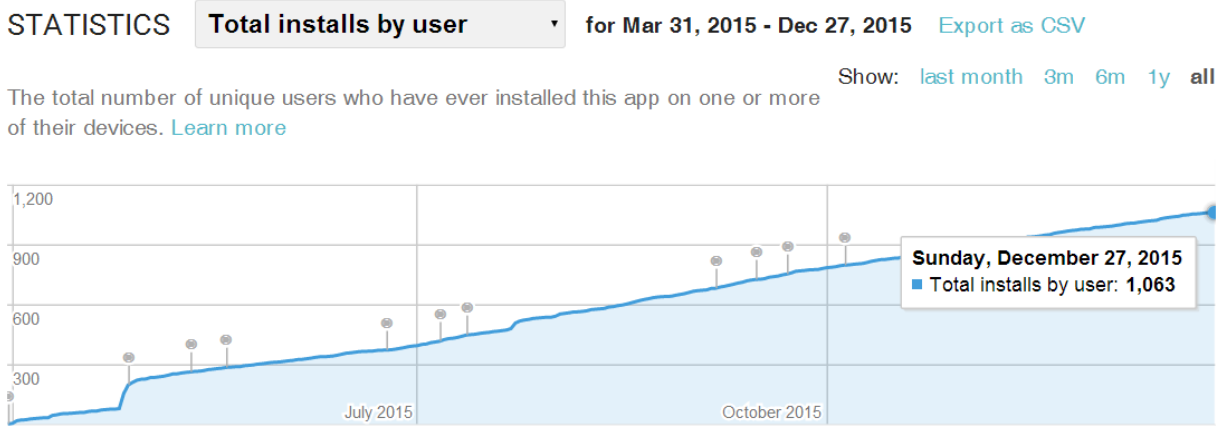
Fig.(9) Total number of Installations by Users
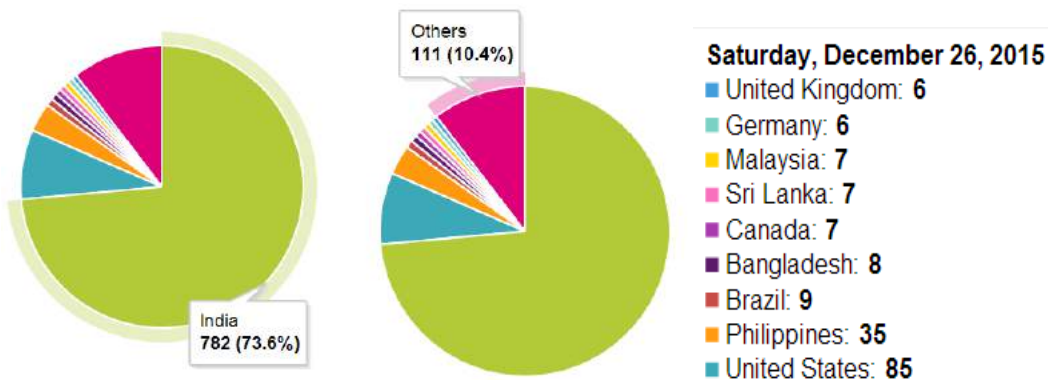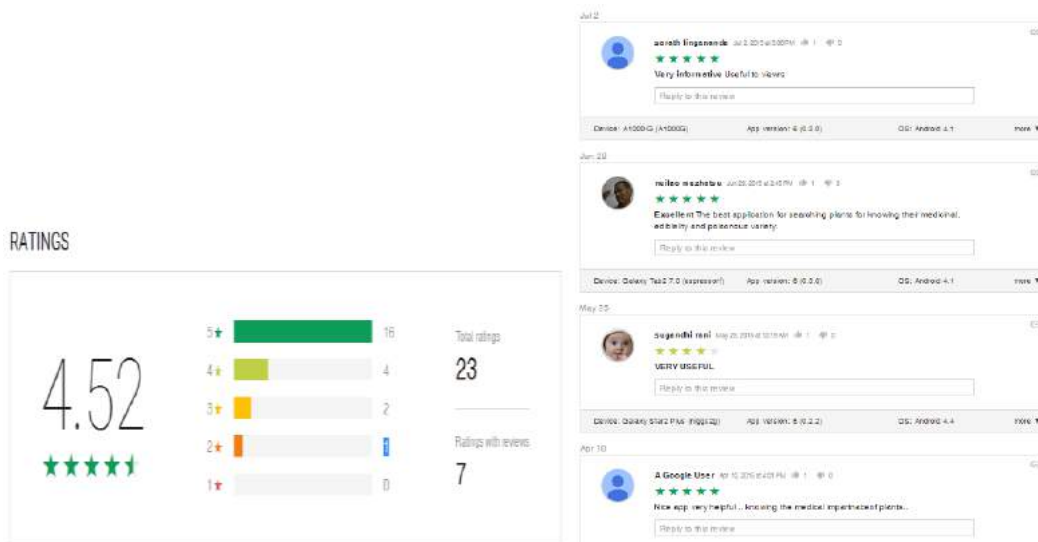

Fig.(10) Users from Different Countries

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Fig.(11) Sample Rating and Review of Apps

This user-friendly App requires internet connection to access the data and fetch data from host server for smooth functioning.

Conclusion:

This App is specific to Bangalore city plants. This informative App can be one of the tools in Environmental Education or Nature Education for middle and high school students of all syllabuses. This provides space to write their field observations related to locations, cultural uses, ecological observations etc and share it to larger groups. This App can be a tool to learn about Urban Biodiversity, changing trends mentioned in feedbacks and help in urban landscape planning and green information. The App on Neighbourhood Medicinal Plants of Bangalore, is a free version of Android application for school students, but helpful for all nature enthusiasts who want to know about common medicinal plants of Bangalore city. Currently, this is developed for Bangalore Urban. Further it could be developed for other cities based on requirements with extended support for development.

Acknowledgements:

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Website links:
1. http://androidexample.com/
2. https://code.google.com/p/apps-for-android/
3. http://developer.android.com/index.html
4. http://eclipsesource.com/en/home/
5. https://github.com/
6. http://stackoverflow.com/

Fig. (1) Mobile View (home page)

Fig. (2) Tab View (Search/ filter option)

Fig. (3) List of plants

Fig. (4) Search result

Fig. (5) Detail Page of plant
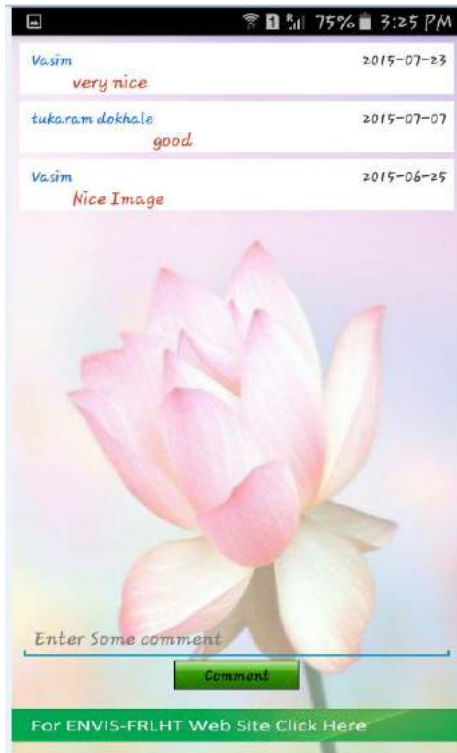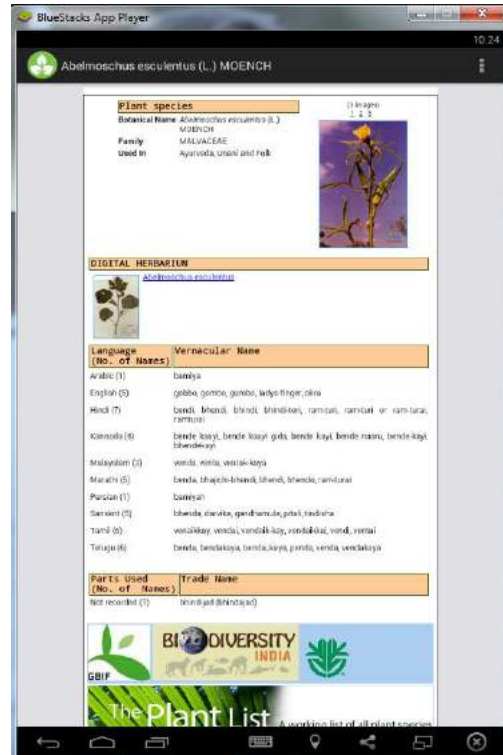

Fig. (6) Image Page

Fig. (7) View Comments

Fig. (8) Plant profile Page from www.envis.frlht.org