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ANDROID APP FOR DIGITAL FIELD IDENTIFICATION OF VARIOUS SPECIES

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Abstract: In the world of widely available mobile phones, tablets and small personal computers, the electronic field guides for field identification of different biodiversity components are emerging as a reality. As an example butterflies are suggested here. Butterflies being an exciting charismatic group of insect easy to access and strikingly colorful with distinct and unique pattern to identity, it is easy to do such a thing taking an advantage of the potentials of present IT skills.

Keywords: *Butterflies, guides, biodiversity, mobile*

1 Introduction

The digital field identification of various species mainly helps in directing their availability over a variety of other similar species. This method improves the ability to study in detail about any particular species to be in extinct state [1]. Locating these species will be difficult and thus application locator helps to ease finding with past recorded availability.

2. Related Works

The problem statement of developed application is one of the important statements of Ministry of forests and climatic change in the Smart India Hackathon.

- The Indian Butterfly- <http://TheNatureWeb.net>
- Smart India Hackathon- <http://innovate.mygov.in>
- Forestry - <http://envfor.nic.in>
- Ornithology Research- <http://sacon.in>
- Butterfly conservation: <http://butterfly-conservation.org>

Features and necessity of Digital Field Identification

In recent years the forestry departments have reported that due to various climatic issues many rare species of animals and plants have gone extinct [2]. Research is being done to know the reason behind this scenario.

1) **Extinction of Wealth:** India is covered and awarded with a huge range of forests and they contain a variety of animal species. Over the past years due to pollution and other reasons there is loss in both greeneries and animal species.

2) **Research of Extinction:** Forest department of Indian government have planned a research on the reason behind the extinction of various species of animal and plants. But they have faced several difficulties in finding the exact location of the distinct species of plants and animals.

3) **Locator by Application:** The application being developed is having the most featured component of locating the place of availability of species in extinct condition.

4) **Survey Analysis:** The proper functioning of this application is mainly due to the analysis done from the survey details of any marked species from past

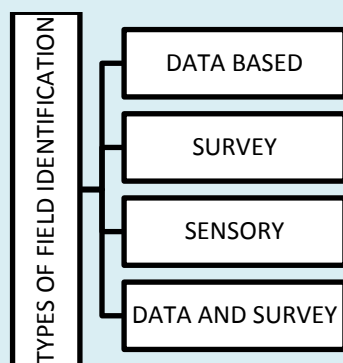
history. These details are required to exactly locate their places of survival.

5) **Directions:** It is an efficient method for applications to even direct the way paved to the located point of species availability.

C. Types in Digital field Identification

1. Data based Identification: Completely based on the data being collected and arranged according to which working model functions.
2. Survey based Field Identification: The data collected from the survey being held between certain years .
3. Sensory based Identification: On Field identification of species helps the analysis being completed.

Complete data and survey method: Comprising all the data and data from survey and on field identification is integrated and analysis is being performed.



3. System Analysis

Problem Definition: Digital Field identification challenges: There is a serious of problems faced by the forestry department now a days for completing the survey reports as they find it difficult to identify the rare species found around somewhere in the vast forest ranges of our country [3].

Proposed system features: The proposed system is a application that is developed for overcoming the problems faced by forest department in identifying the rare species around the forest ranges. Our application is available in android devices which would help in easy portability and identification over survey periods.

System requirements: The following list gives an overview of the most important requirements of the proposed system

- User friendly interface: User can easily manage to locate any species which is being listed out in analysis and surveyed category.
- Security and authentication: Only authorized user can login to the system (locally, or remotely) in order to manage, control, & monitor.
- Finding easy routes: Finding the traffic and travel time from user location to pointed place is distinguished using Google maps.
- System Scalability: Scalability is the ability of a system to support many number of additions to the mandatory number of categories and classifications available.

4. System Design And Implementation

1. Proposed Field Identification system layout

As mentioned the proposed Field Identification system consists of three main modules, the analysis, the user interface interface module, and the database module. The following figure (1), shows the proposed system layout

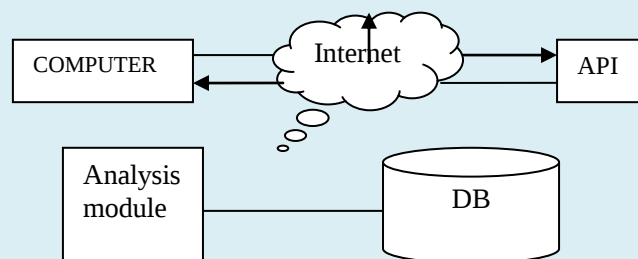


Fig.2 Field Identification system layout

2. Design and Implementation Constraints

The Proposed Field Identification system is implemented using android development tools.

3. Assumptions and Dependencies

- The component of the system will always be connected
- Each User must have a User ID and password
- There is only one Administrator.
- There should be Internet connection available for locating the latitude and longitude of destination.
- Location permissions should be granted to access the user locations.

5. Process of the proposed system

The Field Identification system fetches the information to user using functions of interface and stores them in database for analysis purpose and identification:

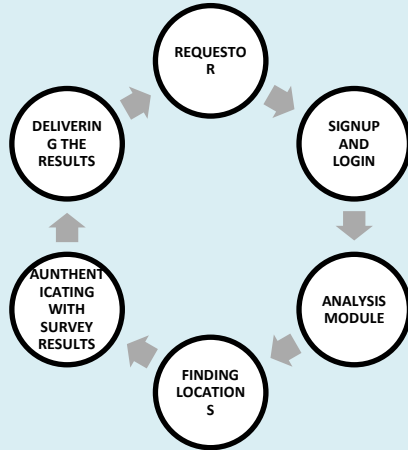


Fig. 3 The process of proposed system

The Field identification application is easy to access.

1. The user or researcher should create an account by signup into the application.
2. The user/researcher has to find the category of species to be identified from the distinguished list.
3. Every search of species will be noted under certain analysis database.

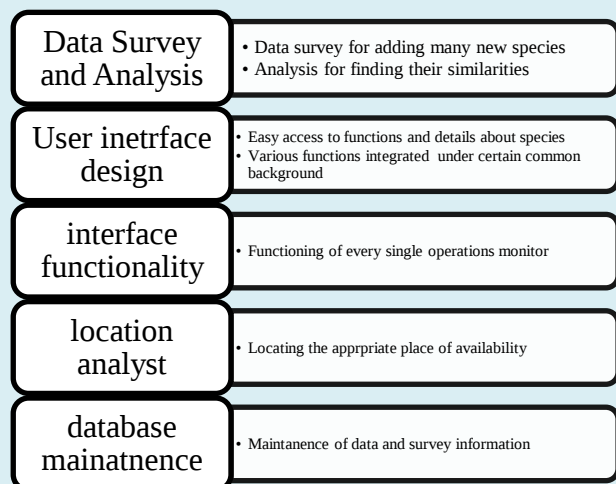


Fig. 4 The research model

6. CONCLUSION

There is no doubt that Digitalisation in field identification might just improve the standard of development of various field diversity living things

over the country with complete updates of categories of species to be removed from being endangered and for also research over the field of habits of each and every species according to the climatic changes from various locations of the country. Development of this application might just help to improve finding new methods of saving various species from being extinct and also to research the wealth and other characteristics of various species.

7. FUTURE WORK

The following point presents the suggested future work for implemented prototype:

- To promote Field identification on sight survey and verification with previous details.
- Sensor based live identification of any new species.
- Attaching location of any new identified species and adding it into the existing database.

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