

**EFFICIENT MEET LOCATION FINDER**

Gitanjali Bagul, Akshata Kedar, Jayesh Hatwar, Yuvraj Patil
Computer Department, AISSMS IOIT

Abstract — Now a day's use of smart phones has increased on a large scale for planning purpose. These mobile devices contain many applications to provide service to users. Similarly, this application provides a planning tool for determining the optimal meeting location which is highly desirable. In this application we are using GPS (Global Positioning System) to find efficient location for meeting. To find efficient location each user's GPS location is considered and then notification will be sent about meeting information to all users who are going to attend the meeting. We used a fast and elitist multi objective Non-dominated Sorting Genetic Algorithm (NSGA II) for selecting location which is convenient for all users. The proposed NSGA-II is able to find much better spread of solutions and better convergence in most problems.

Keywords - GPS, genetic algorithms, multicriteria decision making, multiobjective optimization, Pareto-optimal solutions, NSGA-II.

I. INTRODUCTION

The moto behind the mobile handset and phone is to provide more functionally and usability to users from many years. Now a day's android is most popular operating system for mobile devices not only for basic communication but also to deliver valuable services. In modern world all the basic functionalities are fulfilled by mobile devices like we can do online shopping, net banking, etc. The mobile phones play vital role in such services.

Android provides many services however, one of the service provided by android is location based service. Location awareness is one of the unique feature of mobile devices. Every mobile users take their devices with them everywhere, and adding location awareness service to your app offers users a more contextual functionality. Location based service use real time geo-data from mobile device to provide information about location of the person.

This android application is also based on location awareness. This application is used to select meeting location. To obtain such a meeting location which will be minimum to all the users. Application will decide a location based on users input locations. GPS system is used to locating different users, these locations will help to compute optimal meeting location. After finding optimal location we notify all the users about the destination meeting.

In this application multiobjective genetic algorithm names as Non-Dominated Sorting genetic algorithm is used. Over the years many multiobjective evolutionary algorithms (MOEAs) have been introduced. The primary reason behind popularity of multiobjective evolutionary algorithm is their ability to find multiple pareto-optimal solutions in one single simulation run. The nondominated sorting genetic algorithm (NSGA) proposed in was one of the evolutionary algorithm.

The issues with NSGA are improved in NSGA-II. The genetic algorithm works on single objective and NSGA-II work on multi objective solutions. NSGA-II algorithm dominates some solutions and keeps only good solutions. NSGA-II algorithm is one of the most used methods for generating the Pareto front, because it can keep diversity without specifying any additional parameters. In this paper, NSGA-II is used to compute location, which has objective to find optimal meeting location.

The basic process for a NSGA-II algorithm is: 1) Initialization 2) Evaluation 3) Selection 4) Crossover 5) Mutation 6) Repeat.

The rest of paper is organized as follows: Section II will define problem statement, section III will define objective, section IV will describe literature survey about paper, section V will describe existing system, section VI will presents proposed system. Finally, we conclude our paper in Section VII.

II. LITERATURE SURVEY

Kalyanmoy Deb[1], A problem with multiple objectives can be solved using set of multiple solutions. Some years ago many multi objective evolutionary algorithms have been proposed. The proposed non dominated sorting genetic algorithm was one of the Evolutionary algorithm. The approaches of NSGA are: 1) High computational complexity of nondominated sorting. 2) Lack of elitism. 3) Need for specifying the sharing parameter Q share. In this paper working of

the proposed NSGA-II algorithm is compared with other two evolutionary algorithms names as 1) Pareto-archived evolution strategy (PAES). 2) Strength Pareto EA (SPEA).

Adinovam H. M. Pimenta[2], In this paper Non-dominated sorting genetic algorithm is proposed. The main feature of proposed algorithm is the distance oriented selection of solutions. This algorithm more efficient than NSGA 2, use for best distribution algorithm.

Ankita Golchha[3], In this paper we learn the flow of algorithm.it is survey kind of paper. In this paper we understand overview of NSGA 2(Non-dominated sorting genetic algorithm-II).Data in the algorithm is automatically tested.

Shishir Dixit[4], This paper help to finding optimal meeting location with the help of NSGA-II, with having extra features of adaptive crowding distance. In this paper the proposed algorithm is successfully implemented for finding optimum location and sizing of SVC to minimize the real power loss and load bus voltage deviation.

Da Yan[5], In this paper we find optimal meeting location using query. We learn from this paper how to minimize total cost of people who want to find location for meeting. This paper propose state-of-the-art algorithm.

Paulo Santos[6], This paper presents idea about finding optimum meeting location based on decision making system. Proposed algorithm uses cost function to calculate a travel location. This paper gives brief scenarios about various examples.

Sachith Abeysundara[7], This paper gives idea about finding the shortest possible distance between two towns or cities using genetic algorithm. This paper uses graph mechanism to describe cities. This paper gives solution based on only considering current state of input or output. The first drawback of genetic algorithm results from their flexibility.

Manav Singhal[8], Now a days there are many location based services. GPS is more important for getting current location. This paper gives information about how to use GPS in location based services. This paper focuses on main features of GPS i.e. 1)Maps Navigation. 2)Location bases reminders. 3)Preferred location search. This paper also describe how GPS can be used efficiently in smartphone.

May H. Riadh[9], In many application notification is required. Purpose of this paper design an android notification applications. This paper gives idea about GCM provided by google and how GCM works in android. GCM makes communication easier and more faster through notification.

Konglong Tang[10], This paper gives idea about service based notification system. This paper describes MQTT protocol used for notifications. Push message are sent to client in real time.

2.1 EXISTING SYSTEM

A normal method which is followed by all people to meet some where is to decide meeting location on phone call. The location or meet point decided by a person is may or may not be efficient for all people. However existing method have some drawbacks that it does not guarantee the meeting location will be minimum to every person.

In existing system while deciding meeting location it does not consider that the location should be suitable to every person. Without considering any factor or computation location is decided.

In this system the person who arrange meeting needs to notify every person individually about meeting location and timing. This will take more time and create headache.

III. PROBLEM STATEMENT

Create application for finding optimal location using current location of users through GPS and notify all users about meeting information.

IV. OBJECTIVE

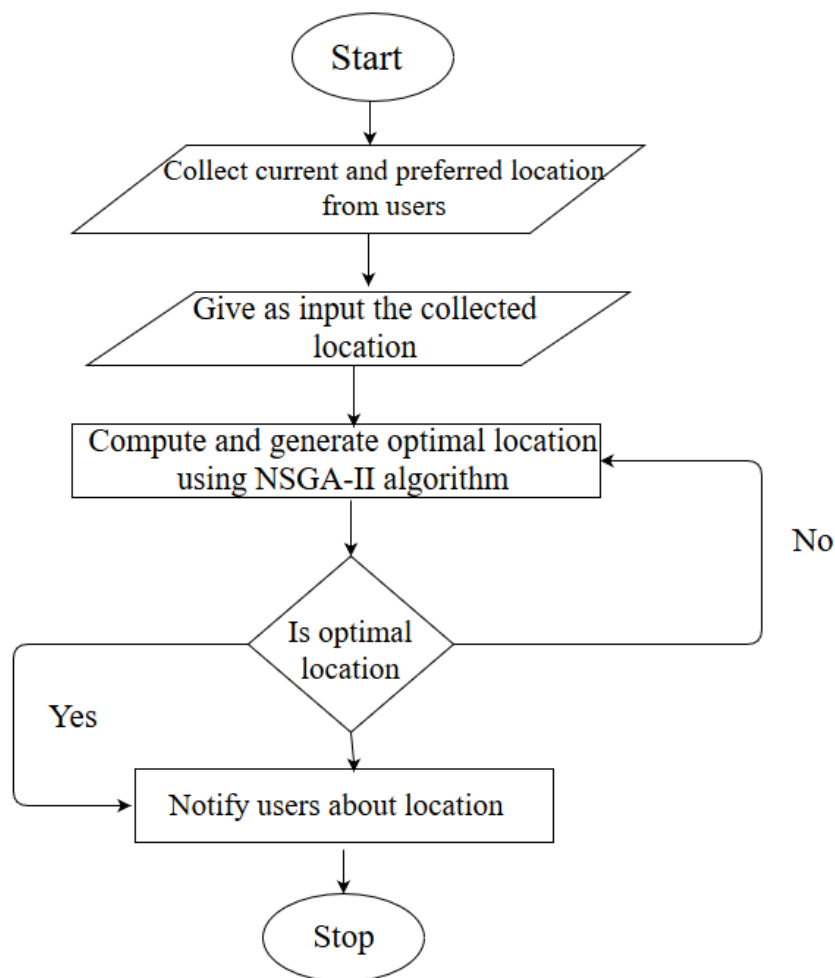
Analyze the input locations of users and obtain meeting location which will be convenient for all members. Notification should be send to all users automatically about destination.

V. PROPOSED SYSTEM

The proposed system is an android application which is proposed to overcome drawbacks of existing system while deciding meeting location. The proposed system will find such a location that will be minimum to every person. So that every person gets fair traveling. The proposed system will use GPS to locate every person. Every persons location will be taken by application, it may be current location or home location.

Based on each person's location minimum meet location will be computed using proposed algorithm. Our proposed system using NSGAI(Non-Dominated Sorting Genetic Algorithm) algorithm to find efficient meet location for every person. The computed location should be fair to all persons for travelling. Every person will get notified automatically about meeting location or venue and timing.so the person who arrange the meeting does not require to notify individually to every person.

This will cause to require less time and work than existing system. Proposed system have feature to notify automatically every person about meeting location and timing. If the meeting location or timing is changed due to some reason then proposed system will notify every person automatically.no need of extra work for notification again.



VI. CONCLUSION & FUTURE SCOPE

Overall in the project we find efficient meeting location through mobile application. We use NSGA-II algorithm for finding optimal distance between the group of users. This algorithm helps to find such location which is fair to all the members. For making communication easier and quicker or giving the information about destination location by notifying system.

For future work, we plan to implement the application on other platforms to increase its applicability.

VII. REFERENCES

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