

“Smart City Garden Maintenance Application”

A Synopsis Submitted

In partial fulfillment of the requirement

For the Degree of

Bachelor in Engineering

In

Electronics Engineering

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Synopsis

1. Introduction

People value the time they spend in city parks, whether walking a dog, playing basketball, or having a picnic. Along with these expected leisure amenities parks can also provide measurable health benefits, from providing direct contact with nature and a cleaner environment, to opportunities for physical activity and social interaction.

In Nagpur city alone, more than 141 gardens are under the Nagpur Municipal Corporation Garden Department. To manage these gardens, NMC has an existing staff of 40, and the NMC's garden department face's severe workforce crisis in maintaining its gardens. As a result of which more than 80% of gardens are not in good condition and have infrequent maintenance.

A good deal of newspaper articles has highlighted that residents are unhappy with their nearby gardens, due to the poor maintenance of public gardens in their area. They had claimed that the children's play area and toilets in the garden are in bad shape and many anti-social elements were misusing the place. According to residents, they have made several complaints through phone calls, emails, and in the form of a written application to NMC's garden department, but in vain.

Tech innovation can have an altering impact on municipal gardens. It can redefine how local municipal corporations interact with and connect to the public. A technology solution can enable residents to have greater services and can assist a municipal corporation with park maintenance. The tool will allow the public to report observed maintenance needs from any connected device, eliminating the time-consuming and labor-intensive process of making a phone call or walking into a park office to request repairs.

The aim is to automate its existing manual system with the help of computer software, fulfilling the requirements of the Administration and the Public. This application not only helps people stay connected to the government and get the latest information, but it also let them take part in its initiatives. It will not only address the issue of garden maintenance but also encourages people to become more engaged with their surroundings.

2. Motivation

Public gardens are one of the important places where people spend most of their day, especially during the morning and evening. The population is so congested in the lanes and streets

of the colonies in the city that people can hardly find a place to relax. All sorts of people, children, young and old, go there for a walk, recreation as well as relaxation.

Many residents are dissatisfied with the garden's poor maintenance and upkeep facilities. Garden maintenance includes maintenance activities performed to ensure public parks are clean, safe, and operational. It includes pruning trees, mowing grass, cleaning garbage, and planting flowers and shrubs. The goal of park maintenance is to ensure that parks serve the needs of the public.

In conversation with many residents, we found that they want convenient communication channels to report repairs, request permission, ask for donations, and much more. The administration wants a channel where the residents can share a geotagged photo with their request, which can streamline the repair process for the public garden.

The municipal corporations outsource the garden maintenance work to third-party contractors. The residents nearby the garden want to rate and give feedback on the work done by the contractor to the municipal officials. Officials receive complaints from many sources, such as phone calls, emails, and grievance forms. So, they want a single channel where they can receive complaints, feedback, and reviews.

It has generally been seen that some gardens are in the best condition while some of them don't have proper maintenance or we can say that number of people visiting these gardens is very less. We want to keep that garden well-maintained and tidy, but we also want the public to frequently visit nearby gardens to enhance their physical and mental health.

3. Related work

Sr No.	Author Name	Article Title	Description
1	Ryan Trenholm And Ramon Lawrence	Improving Park Maintenance Efficiency Using a Mobile Application [7]	A site Manager application was developed to save time maintaining irrigation systems. The use of the application worked as the field workers were able to do the maintenance activities in a minimal amount of time.

2	Pritam Ahirrao and Smita Khan	Assessing Public Open Spaces: A Case of City Nagpur	This case study analyses the data collected through a self-administered questionnaire survey and observations. This discussion section interprets the result which they collected and identifies the issues and strengths in public open spaces.
3	Silvia Yuslim	Strategy for Managing Public Park Maintenance as One Effort for the Implementation of Sustainable Green Open Space [8]	In this paper, they have discussed the strategy for maintaining public parks to utilize public involvement. They also expected efforts to achieve the sustainability of the role and existence of green open space.
4	Ariel E. San Jose	Maintenance, improvement, and supervision of parks and playgrounds in Davao City-An Evaluative study [9]	In this paper, the author has done an evaluative study regarding the maintenance of the park and to know the level of improvement of parks. In the first batch, the author took out about 20 people who on daily basis visit the park and had a questionnaire with them as to what all improvements the park needs and regarding maintenance of the garden.
5	Dhwani Shah	Public Garden Maintenance Through PPP- A case of Ahmedabad India [10]	In this paper the author has talked about how the Ahmedabad government came up with the idea of the Public Private Partnership model through which they gave a contract to Amul to construct their store on garden premises and the maintenance of the garden will be taken care of by Amul.

6	Stephan Barthel, stockholm, atle.	Social-ecological Resilience for Sustainable Development Master's Programme	Aim of this study was to gain an inside perspective of how and why middle-class Bangaloreans engage in gardening.
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4. Proposed Methodology

To create a web/mobile-based system that will allow the public to register and access the services offered by the municipal corporation's garden department while allowing the Administrator to manage their garden maintenance efficiently.

A. Identification Phase

In the identification phase, the aim will be to identify the key issues and difficulties the local municipal corporation faces in maintaining public gardens. Interview locals to learn about the main issues, their involvement, and their suggestions for making public gardens more sustainable.

B. Analysis Phase

To analyze the municipal corporation's garden department, and its workflow, and to look for problems that occur within the department. After the study, and analysis of an existing system. The next task will be to study the feasibility of the system for the public and the garden department.

C. Design Phase

In this phase, we will build a logical system with the given requirements. Design of Data flow diagram, Database schema, and User Interface according to requirements.

D. Implementation Phase

The next phase is the implementation phase, the goal will be to implement the planned system into an application. We will use python for the backend system and react native for the fronted system.

5. Plan of work

Sr. No.	Activity	Duration
1.	Project Allocation and Literature Survey	July 15 th - July 30 th
2.	Identify Requirements	Aug 1 st - Aug 10 th
3.	Software Architecture Design	Aug 11 th - Aug 25 th
4.	Building a Prototype	Aug 26 th - Sept 25 th
5.	Demo and Testing	Sept 26 th - Oct 5 th
6.	Result analysis and Documentation	Oct 6 th - Oct 30 th

6. Reference

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9. https://www.researchgate.net/publication/317688355_Maintenance_Improvement_and_Supervision_of_Parks_and_Playgrounds_An_Evaluative_Study
10. https://www.researchgate.net/publication/281811178_PUBLIC_GARDEN_MAINTENANCE_THROUGH_PPP-_A_CASE_OF_AHMEDABAD_INDIA