Emerging Technologies and its adoption in Service Delivery by Department of Local Government

A. Using Tech-based IT solutions at Local Government

Using IT-based solution for accounting green cover area, conducting tree census and monitoring sustenance of the trees. On June 5th, 2023, PMIDC launched an application developed in-house which will facilitate to conduct geo-enabled **Tree census** survey and plot the same with digital coordinates on the map. This application is further linked to a real time monitoring dashboard that will provide information on plantation programme progress, Quality checks status, layout of different varieties/specifies, distribution under different wards etc.

- Geo tagging of all the trees in the ULB
- Query Search for trees by species, location, or advanced filters such as diameter, date planted, or
- tree characteristics, etc.
- Tree photos.
- Monitor the progress on real time basis
- Get optional integrated tree key to assist in identifying tree species

Spatial Inventory
- Through geo tagging a spatial inventory will be available for urban trees. This can be used to schedule maintenance, tree care and other regular operations.
- In addition, such inventory will be crucial when applying green or carbon credit calculations in urban regions which would be cross-verified with the plantation records kept during each plantation drive by ULBs and future urban planning actions.

B. Use of Emerging Technologies – NLP

In order to improve online or digital reach of citizens for availing municipal services the project was initiated with seeking proposals for Selection of Service provider for WhatsApp Business solution to communicate more efficiently with consumers and provide them services in a better and efficient manner. Vision was to create a verified WhatsApp Business profile of PMIDC. Chatbot was developed by PMIDC with the help of eGovernments Foundation and integrated with whatsapp. Vendor provided whatsapp container APIs for receiving messages from citizens and sending notifications to them.

1. mSeva Chatbot is NLP based Bot designed for municipal services delivery to the citizens at ease. This Chatbot has the following features.
- Pay Bills
- Download Receipts
- File and Track Grievances
- Receive notifications and updates regarding due etc.
- Local Language Support

2. Punjab Covid Care Chatbot is designed and developed by the PMIDC in-house during the second wave of Covid 19. The Chatbot was developed with the following features.

I. Get Information about Covid: Chatbot provides authenticated access to information

- How to do Self Care in Covid
- How to use Fateh Kit
- Information about availability of Covid Beds
- Information about Vaccination Centers

- Where should I Register for getting vaccinated?

II. Detailed information and DOs and Don'ts in Case of Black Fungus
Self Inspection: Enabled citizens to self register their vitals 2 times a day.
III. Inspection by Rapid Response Team: RRT team members were provided access and option to submit patient inspection reports through Chatbot.

Overview of Initiative

Due to COVID-19's unprecedented occurrence, businesses and industries all over the world were obliged to change the way they function, and governments were no exception. The significance of eGovernance Initiatives in people' lives has changed throughout COIVD19, both in terms of their applicability and acceptance.

Enforcement of social distancing by governments in the past has led to the enhanced role of eGovernance initiatives in delivering all kinds of services/ facilities at large. This led to work towards innovating a tech based solution to streamline service delivery. While working on solution we needed to ensure that

• Interaction is purely online (in alignment with social distancing/ lockdowns).
• The feeling of communication with the government officials is maintained.
• Services are availed in the simplest manner with minimum steps (no complications at all) and localized language.
Thus mSeva Chatbot was conceptualized and rolled out. The mSeva Chatbot is an automated conversational Bot that provides seamless and robust user experience to the end users.

Emerging Technologies and its adoption

Natural language processing (NLP) is a critical part of the digital transformation. NLP enables user-friendly interactions between machines and humans by making computers understand human languages. Intelligent Chatbot is an essential application of NLP to allow understanding of users' utterance and responding in understandable sentences for specific applications simulating human-to-human conversations and interactions for problem solving. As an important application of AI technologies, mseva Chatbot were developed to enable citizens to avail municipal services in the language easily understood by them. Punjab Covid Care Chatbot, an intelligent Chatbot helps answer large number of questions related to the pandemic and provides citizens the option to perform daily self inspection and register their vitals daily. AI was applied in the backend to generate alerts for medical officers to necessary and immediate actions regarding patients with co morbidities or whose SPO2 is below the minimum limit defined by NHA. During the pandemic there was a requirement to collect daily information from the field and process it using AI for timely action. NLP based Chatbot helped to quickly obtain information thereby enhancing operational efficiency and improving service levels.

Node.js is an event driven open source runtime to create server side applications. It is a highly customizable, server engine that allows the creation of real time web APIs. It processes in a loop and sets up to respond to the requests. Node.js is one of the best emerging technologies. Express NodeJS server was used to receive and send messages to/from the WhatsApp Partner Server. Using this technology we are able to communicate with our community facilitators and motivators deployed in the field under swachh bharat mission.

Through use of Chatbot were able to capture the coordinates of CF , motivators and RRT team members and check the exact location on GIS maps.