

Executive Summary



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1. Title of the Project:

Ambulatory Sensing and Point-of-Care Recommendation for IoT-Based Healthcare

2. Date of Start of the Project:

February 1st 2019

3. Aims and Objectives:

The main aim of the project is the development of a recommender system for patients in ambulances travelling from primary and secondary healthcare centers to tertiary care centers.

- (i) To provide continuous and real-time monitoring of ambulatory patients.
- (ii) To sense and detect patient affliction and possible course of treatment.
- (iii) To recommend the nearest and best possible healthcare center for immediate treatment.

4. Significant achievements (not more than 500 words to include List of patents, publications, prototype, deployment etc.)

The prototype developed under this project measures the vital parameters of the patient such as Temperature, Blood Pressure, SpO2 and ECG. Although similar systems are commercially available in the market, most of them are meant to be used as offline units without IoT capabilities. Further our system is equipped with a smart

recommender which aims to provide the nearest and best possible healthcare center for immediate treatment.

The modularized design of our system enables it to be manufactured at ease. Patent for the system has been filed with the title “Modularized IoT Based On-Demand Ambulatory Hospital Recommender System” vide application number 202231008007. The developed technology has been planned to be transferred to iKure Techsoft Pvt. Ltd. (<https://www.ikuretechsoft.com/>) for large-scale deployment across various regions of the country to provide emergency healthcare services to the far flung areas that lack proper infrastructure and facilities.

5. Concluding remarks

IoT has vast potential to revolutionize the healthcare industry by enabling real-time monitoring and analysis of patient data, reducing medical errors, and improving patient outcomes. With the integration of wearable devices and smart medical equipment, IoT can provide continuous monitoring of vital signs and chronic conditions, enabling earlier diagnosis and personalized treatment plans. In our endeavor to develop an IoT based system for health monitoring, acquiring patient vital data has been one of our major challenges. The data is highly sensitive, and the accuracy and reliability of the data play a crucial role in determining the patient's health status and treatment plan. The difficulty in acquiring patient vital data lies in the fact that the data needs to be collected continuously and in real-time, which requires the deployment of wearable or implantable devices that can accurately sense and monitor various physiological parameters.

Validation of developed devices is also another challenge, as the devices need to meet specific standards for accuracy, reliability, and durability. The devices need to be tested in various scenarios, including real-life conditions, to ensure that they can perform accurately and consistently. The validation process also includes verification of the algorithms used to process and analyze the collected data, which requires extensive testing and refinement.