“SUJHAAV
A solution to clean water”

Project submitted by
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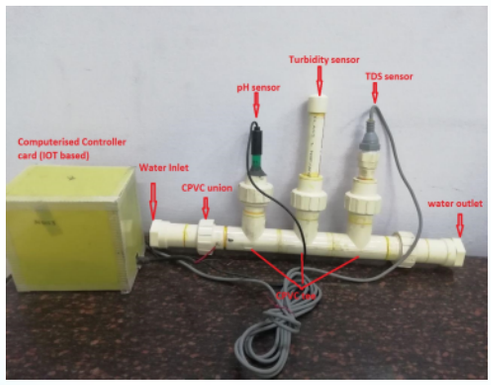
Introduction

- Water is a fundamental human need
- Each person on Earth requires at least 20 to 50 liters of clean, safe water a day for drinking, cooking, and simply keeping themselves clean
- Tens of millions of people are seriously sickened by a host of water-related ailments—many of which are easily preventable
- Sources of water contamination: human and animal wastes, agricultural runoff, industrial chemicals
- Regular monitoring of contaminant levels in water can give a clear indication of water quality
- Online water quality monitoring is essential for quick decisions and alleviating the hazards of contaminated water

Project Scope and Objectives

1. Identification of slum locations in Delhi with suspected drinking water quality
2. Online Monitoring of water quality through sensors
3. Installation of water purifiers
4. Assessing the water quality of purifier output
5. Training to economically weak and unemployed persons in water purifier maintenance and service

Work Done



➔ Development of Water quality sensor device

- Can sense and transmit the water quality online through IOT based controllers
- Resulting real-time data can be accessed on the web.
- Compact, inexpensive, easy to use, and can be installed at different types of locations.

➔ Parameters selected for water quality monitoring are: pH, Turbidity, and TDS

➔ Online data Monitoring

- pH, Turbidity and TDS data sent to cloud and can be accessed by logging on to the following webpage with the given Username and passwords: http://okayaiot.com/nasaka/

➔ Publication of development work

- Paper Title: Online Water Quality Monitoring through Sensors
- Authors: Khushi Jain, Mandeep Kaur Sukhija, Diya Singhal, Arush Gupta

Journal : IOSR Journal of Environmental Science, Toxicology and Food Technology Vol. 14, Issue 6, Series 3, Page No. 18-21

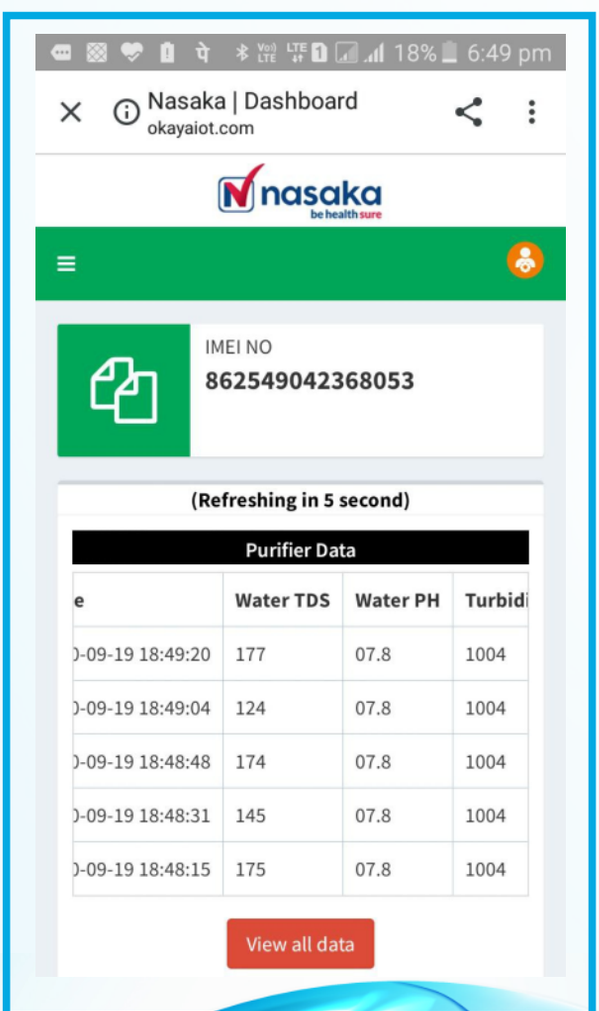
➔ Installation of WQM sensors at two JJ locations in Udyog Nagar Industrial area

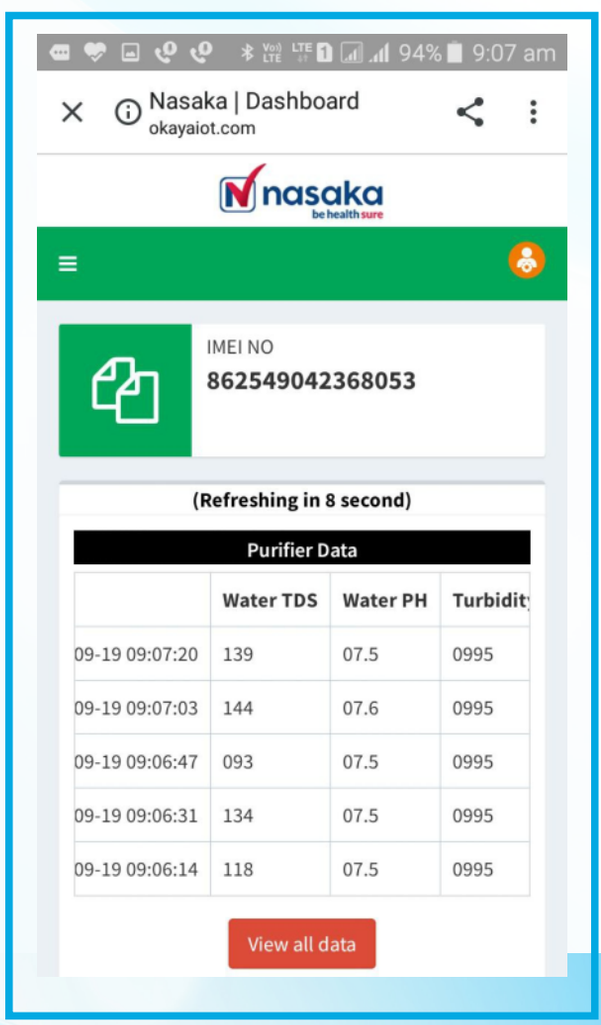
- C-3/206 , Udyog Nagar, New Delhi-110087
- T Huts, Block B 804 Udyog Nagar, New Delhi-110087

Water Quality monitoring sensor assembly installed at Location-1

Water Quality monitoring sensor assembly installed at Location-2

➔ Collection and Analysis of Data





Nasaka Xtra Sure installed at the location.

➔ Installation of Water Purifiers

- Gravity based water purifier-NASAKA Xtra Sure Direct, which does not require electricity to operate. They have 5 stages of filtration-Sediment, activated carbon, tourmaline balls, steel mesh and Ultrafiltration (UF) membrane. UF membrane filters out all disease causing microbes form water and the output water is safe for drinking.

➔ Training

- Training for maintenance and service of the water purifiers given to the persons in the household

Conclusions

- Multi parameter water quality sensors are low-cost tools for water quality monitoring, which can be employed at various slum clusters. The overall system is cost-effective, portable, and easy to use by even unskilled persons.
- As a part of the Corporate Social Responsibility initiatives, various corporates can employ these sensors and water purifiers at the slum /JJ locations, thus providing safe drinking water to the poor and needy. This will not only help in improving the overall health of these people but will also generate employment in the field of service and maintenance of water purifiers to the economically weaker sections of the society, creating an enormous positive impact on society.
- The installation of such systems at various effluent sites and live data monitoring by the government authorities can instantaneously help in decision making and necessary actions to use water purifiers, which would prevent water borne diseases.