SMART PUBLIC RESTROOM

PHASE 2 INNOVATION:

According to the research and analysis taken by us, we had come to a conclusion with a simple but effective innovation idea to solve the problem mentioned in the phase 1.

These are the technologies and components are involved in our innovation.

MICROCONTROLLERS:

- NodeMCU (ESP8266): This will serve as the main controller to connect to Wi-Fi and control other devices.
- Because our solution is based on these both controllers use cases.

SENSORS:

- We prefer , Occupancy Sensor: To detect when someone enters or leaves the restroom

CONNECTIVITY:

- Even though we have different modes of connectivity, we prefer WIFI for our data transmission for fast and long coverage distance data transmission to public people.
- We chose WIFI because it is already integrated in ESP8266 microcontroller and it has high data rate for transmission.

PROTOCOL:

- Wi-Fi (IEEE 802.11): NodeMCU is a Wi-Fi module, so it primarily uses Wi-Fi for communication. You can connect it to the local network and control or monitor the smart restroom system via the internet.
- HTTP/HTTPS: You can set up a web server on the NodeMCU and use HTTP or HTTPS to create a web interface for users to interact with the smart restroom system through a browser or a dedicated mobile app.

PROGRAM:

To create a smart public restroom system using a NodeMCU (an IoT development board), you'll need to write and upload code to the NodeMCU to control various sensors and actuators.

1 Arduino IDE: You can use the Arduino Integrat Development E(IDE) with the ESP8266 board support package to program NodeMCU boards. It uses a C/C++-like language.

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CLOUD:

- Although many cloud services are available like Google, Amazon and others, it is available in paid version.
- So, we chose BEECEPTOR cloud which supports HTTP/HTTPS protocol for solution.

This app will be available with these following features:

1.These features aim to create a more convenient, comfortable, and sanitary experience for restroom users. The integration of technology and automation can significantly improve public restroom facilities, making them safer and more user-friendly.