

PUBLIC TRANSPORTATION SEATING SYSTEM USING IoT

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ABSTRACT



- ❑ A novel IoT Based Public Transport Seating System is proposed. Every seat in a public transport (Bus or Train) will be attached with a switch (push button) or a load cell. The switches are connected to the IoT controller Node MCU.
- ❑ The entire system is monitored using a mobile app from a remote location. Whenever the person sits on a seat, the system indicates that the seat is occupied and if there is no person sitting on the seat, the system indicates that the seat is empty. Using this device, public transport and vehicle seat occupancy management can be done efficiently and consumers also can be aware of empty/occupied seats.
- ❑ This will be of great assistance for elders, patients, females and children to identify the empty seats and board the respective compartments.



WHY WE PLAN THIS PROJECT

- ❑ Public transport still stays a blessing to individuals as they still prefer local trains and buses for their day-to-day transport. But standing for long hours inside the train even when the seats are available in other compartments on board strain on more importantly individuals' life.
- ❑ Furthermore, trains stay crowded or with few passengers creating extremely disagreeable and unproductive management of resources.



BASED ON SURVEY



- ❑ Nowadays, many people are suffering from seating problems during traveling. In Chennai, it is the third busiest suburban railway system in India after Mumbai and Kolkata. Based on the survey, in Chennai, 5.5 million people are traveling per day.
- ❑ Out of 5.5 million people, 2.5 million passengers are traveling by local train and metro. A brainy transit method is part of the main thrust areas below the government's initiative for a brilliant town.
- ❑ India's urban population constitutes about 36% and needs exhaustive basic developments in all infrastructure.

OBJECTIVE

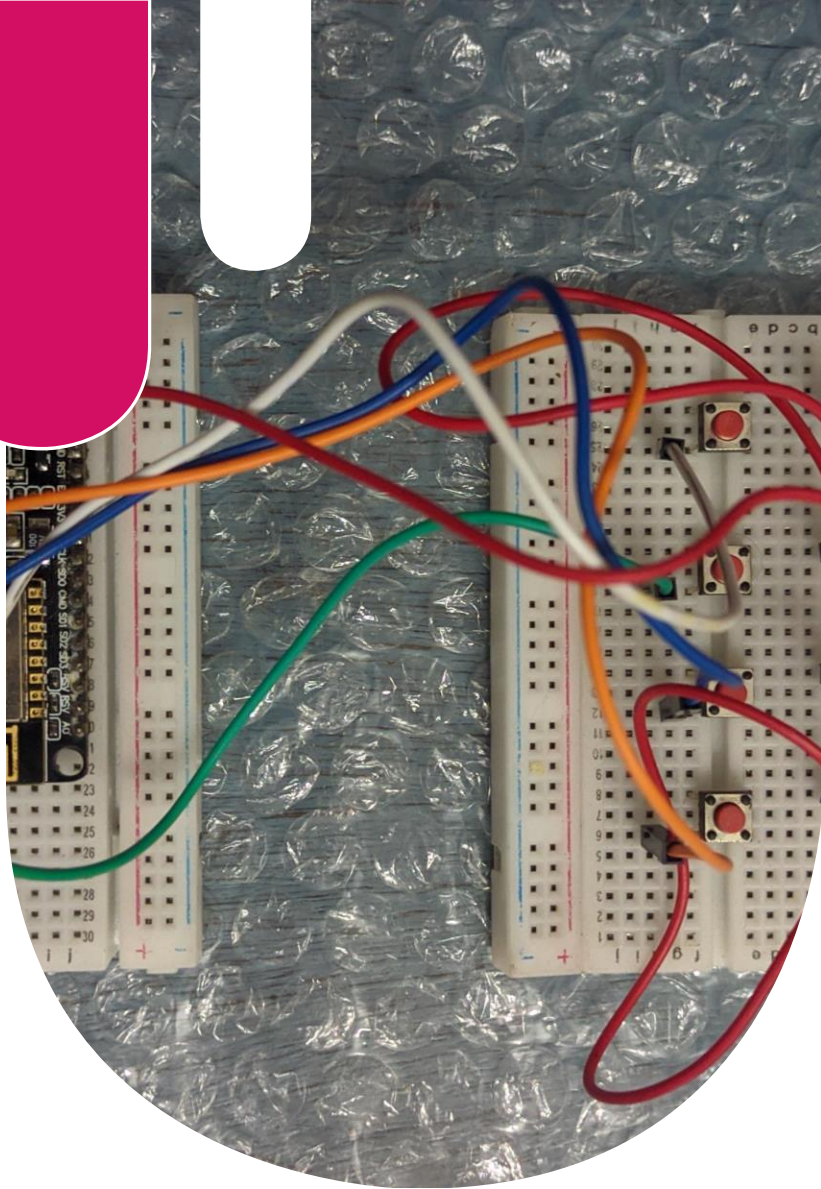


- ❑ The IoT-based system provides real-time information regarding seat availability sensed by the mini switch and sends information to the app about the availability of seats on the local train. This
- ❑ The IoT-based public transport seating system aims to allocate vacant seats on the train over the Internet.
- ❑ All the components that are connected to the IoT network can be controlled and secured through your smartphone.

OBJECTIVE



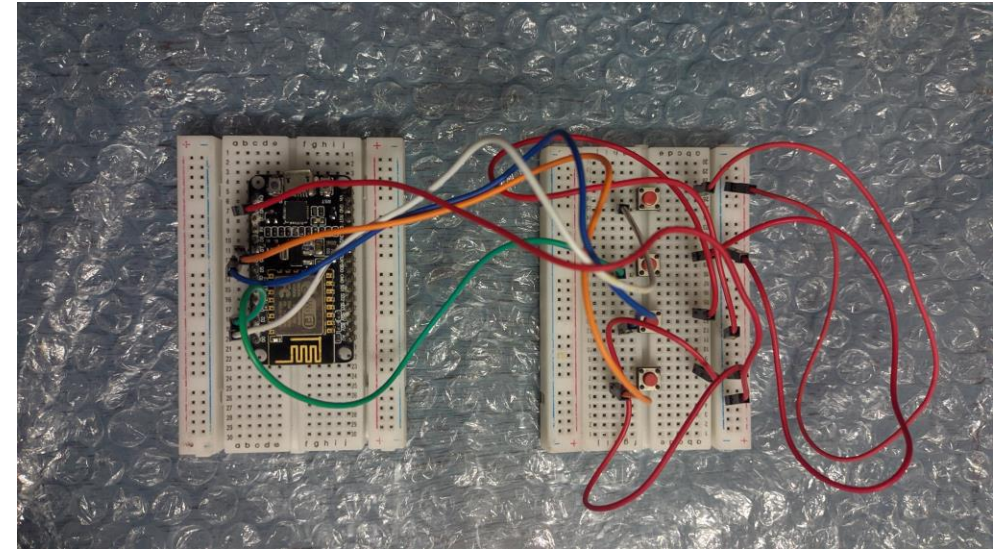
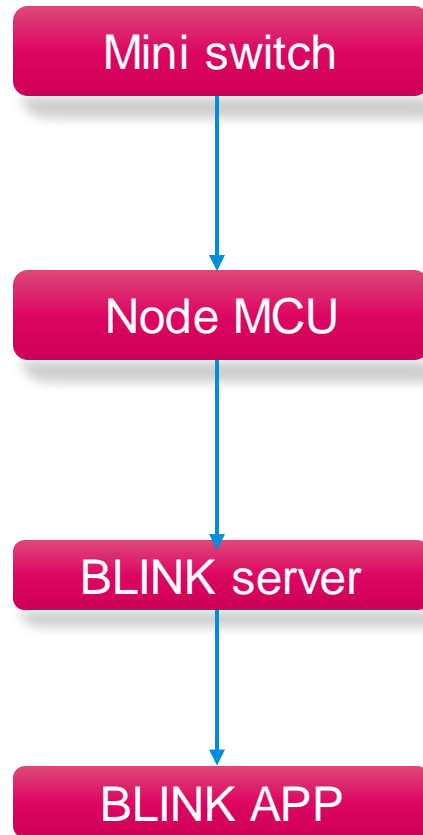
- ❑ Digitalization of seat availability checking in trains is also a kind of development in this fast-growing world.
- ❑ The Proposed system is designed to detect the seat availability in the train using the mini-switch mounted with some IoT device. In long-distance travel, IoT system helps to increase the efficiency and effective process on every need of the user



COMPONENTS

- Nbdde MCU-1
- Adapter 5v -1
- Switch - 2
- Connecting Wires
- Breadboard
- Nbdde MCUCable

WORKING DIAGRAM

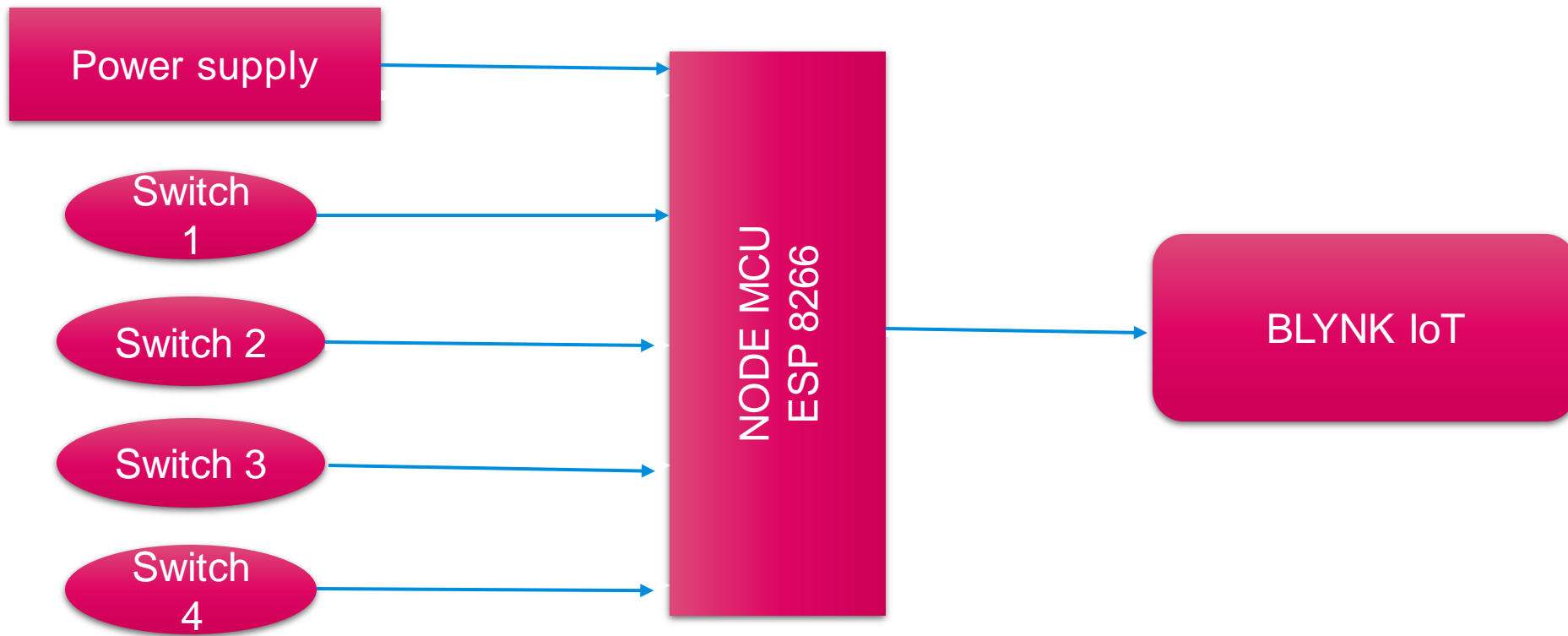


WORKING PROCEDURE



- ❑ A mini switch is placed under the seats which are connected to the breadboard by using connecting wires.
- ❑ Switches are connected to the controller Node MCU.
- ❑ Node MCU is connected by using a username and password which are already defined in the embedded C program.
- ❑ When pressure is applied to the mini switch, it passed command to the node.
- ❑ The node MCU is integrated with wi-fi system, when the node MCU get command from mini switch, the node MCU pass command to the blink app with help of blink server.

CIRCUIT DIAGRAM

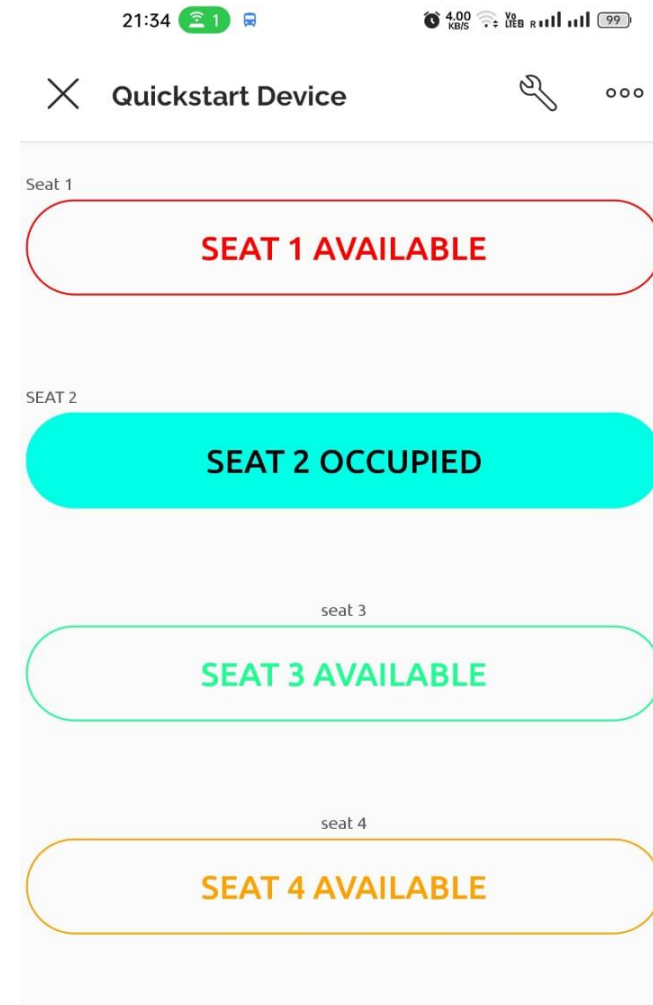
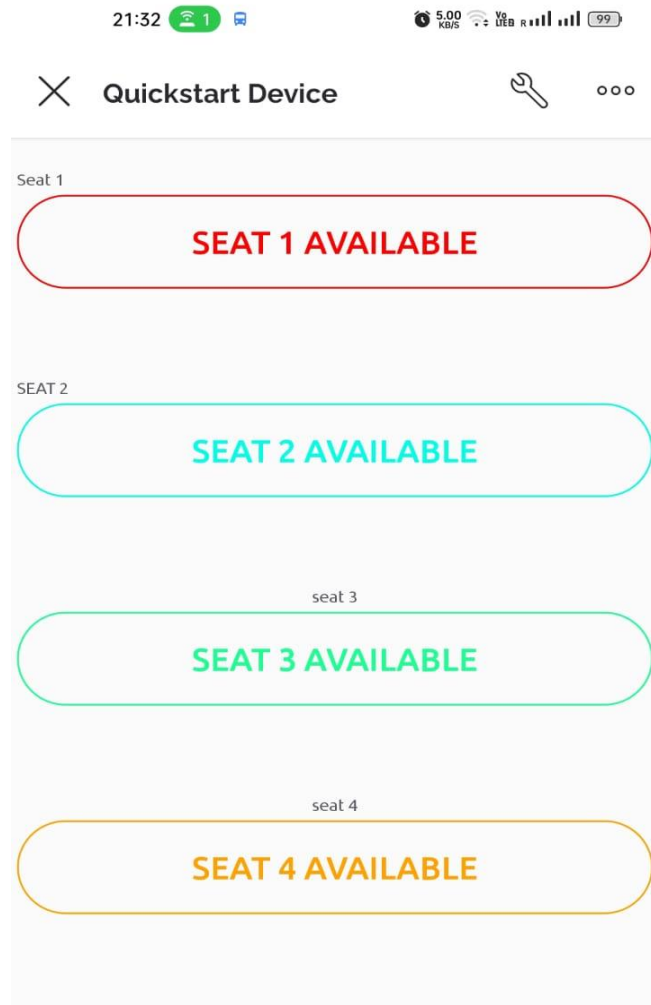


BLYNK APP



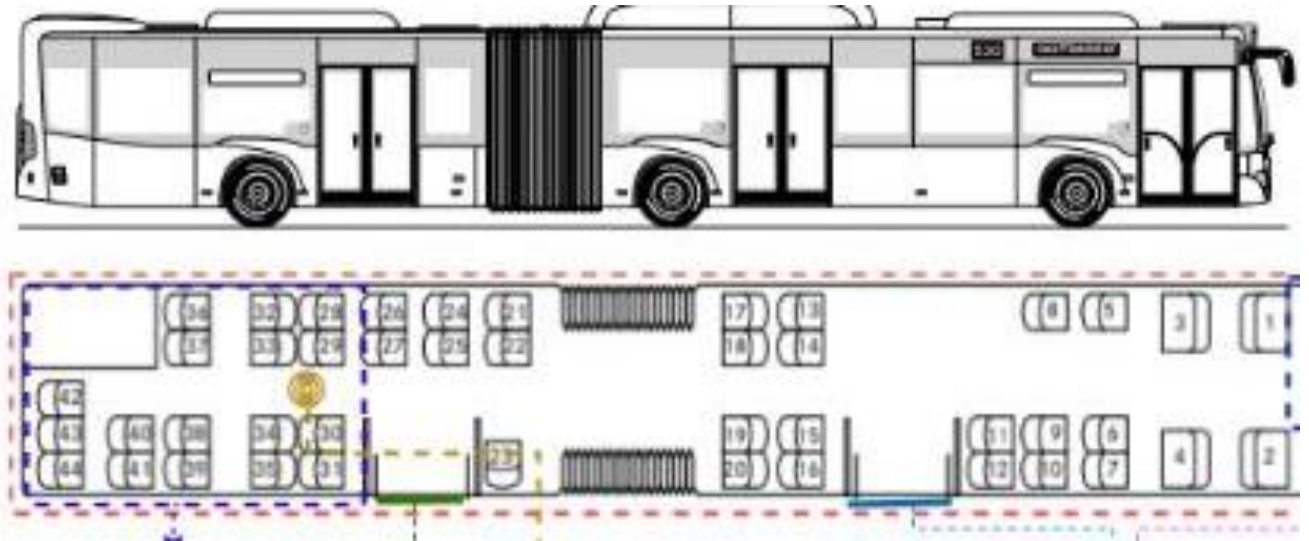
- Blynk is a popular IoT (Internet of Things) platform that allows users to build IoT projects using a mobile app, without the need for coding or programming.
- It is an open-source platform.
- It can control hardware remotely, it can display sensor data, can store data, visualize it and do many other cool things.
- There are three major components in the platform: Blynk App - allows to you create amazing interfaces for your projects using various widgets we provide.

WORKING SCREEN SHOTS



BENEFITS

- ❑ Increased comfort and safety.
- ❑ Improved passenger experience.
- ❑ Better data insights.
- ❑ Reduced maintenance cost.
- ❑ Improved efficiency.
- ❑ Very helpful for daily ridership person.
- ❑ Avoid footboard traveling/



CONCLUSION



- ❑ The proposed system will be very helpful for people as well as the government.
- ❑ Seating systems can be used in a variety of transportation modes, including buses and trains.
- ❑ An IoT-based public transport seating system can provide multiple benefits for passengers, transport operators, and society as a whole.
- ❑ The implementation of an IoT-based public transport seating system requires a significant investment in technology and resources, but it can lead to significant cost savings, environmental benefits, and safety improvements in the long run.
- ❑ This can promote the sustainable development of urban mobility and improve the quality of life of urban residents.

THANK YOU!

