Phase 3: development part

Here are some steps to help for deploying IOT devices:

1.Define objectives:

Clearly define the objectives of your project.the specific aspect of public transpotation want

To optimize is route efficiency.

2.Select IOT device:

Choose the appropriate IOT devices .This include GPS trackers for vehicels ,sensors for monitoring environmental conditions,cameras for survillence.

3.Data collection:

Install IOT device on public transpotation vehicles to collect data.This include location ,speed,

Passenger count and soon.

4.Connectivity:

Ensure these devices are connected to internet to transmit data in real time.

5.Data processing:

Develop a system to process the data collected.Cloud platform like AWS,azure (or)

Google cloud .

6.Data analysis:

Analyze the data to identify areas for optimization.

Eg: you can use data to optimize route.

7.Mobile app (or)web interference:

Create a user friendly interference. Such a mobile app (or) web portal for passengers

And transpotation operators.

8.Feedback mechanism:

Implement a feedback mechanism , allowing passengers to provide input

And report issues in real time .

9.Optimization algorithm:

Develop optimization algorithm to improve transpotation efficiency

Sensor Units:

1.GPS Sensors:

GPS sensors are crucial for tracking the real time location of vehicles. They help in route optimization .

2.Accelorometers:

These sensors can detect sudden stop ,acceleration or vibrations helping monitor driver behavior and vehicles condition.

3.passenger counting sensors:

These sensors, which can be infrared or ultrasonic , help in estimating passenger load on vehichels ,aiding in service.

4.environmental Sensors:

Sensors for temperature ,humidity,air quality, and, weather conditions can assit in ensuring passenger comfort.

5.RFID/NFC Readers:

RFID oR NFC readers can be used for ticketing and contactless payment systems, enhancing efficiency and passenger convenience

6.Camera sensors:

Survillence camera can improve safety and security on public transportation , they can be used for license plate.

7.Weight sensors:

Weight sensors are usefull for monitoring cargo and ensuring vehicles are not overloaded , which can affect efficiency and safety.

8.Proximity sensors:

Proximity sensors can detect the presence of vehicles or objects in the vicinity , aiding in collition avoidance and automated parking.

Python Script

```
Import network as nx

#Create a graph representing the transportation network

G=nx.Graph()

# Add nodes (stops)

G.add_node(“A”)

G.add_node(“B”)

G.add_node(“C”)

#Add edges (routes) with distance

G.add_edge(“A”,”B”,weight=5)

G.add_edge(“B”,”C”,weight=3)

G.add-edge(“A”,”C”,weight=8)

#Find the shortest path

Shortest_path=nx.shortest_path(G,

Source=”A”,target=”C”,weight=”weight”)

Print(“Shortest Path:”,shortest_path)
```