

**TEAM MEMBERS: 1. MEGHANA B 2. MATAM MANASWINI 3. SHREE RAKSHA B N SUPERVISOR: Dr. SUNITA PANDA**

## Abstract

- **Challenges for Farmers:** Farmers struggle with real-time tracking, leading to delayed shipments and low-quality deliveries. Customers face multiple inquiries about delivery times and may receive spoiled products.
- **Middle-Man Issues:** Inaccurate tracking can be exploited by middlemen, resulting in reduced farmer earnings and customer dissatisfaction.
- **Traditional Supply Chain Problems:** Inefficiencies and lack of real-time tracking hinder effective agricultural product delivery.
- **Solution - Vehicle Tracking System (VTS):** Utilizes GPS technology and GSM/GPRS communication for reliable, real-time tracking.
- **Technology Used:** Arduino microcontroller manages the GPS and GSM/GPRS process. The GPS module collects vehicle coordinates, while the GSM/GPRS module sends updates to users.
- **Smartphone Application:** Features a user-friendly interface for real-time vehicle tracking, keeping farmers informed throughout the delivery process.
- **Outcome:** Continuous monitoring and timely updates improve supply chain efficiency, ensuring higher-quality agricultural products reach customers without delays.

## Background



- **1980s:** Basic Radio-based tracking; drivers manually reported locations.
- **1990s:** Introduction of GPS improved accuracy and accessibility.
- **2000s:** GPS combined with mobile networks enabled real-time updates via wireless communication.
- **Today:** Advanced GPS and GSM technologies integrated with mobile apps and internet services provide real-time tracking.
- **Benefits:** Improved logistics, faster and more efficient deliveries, enhanced transparency.
- **Industries:** Reliable and cost-effective solution for agriculture, transportation, and more, offering better control over vehicle movements.

## Methods

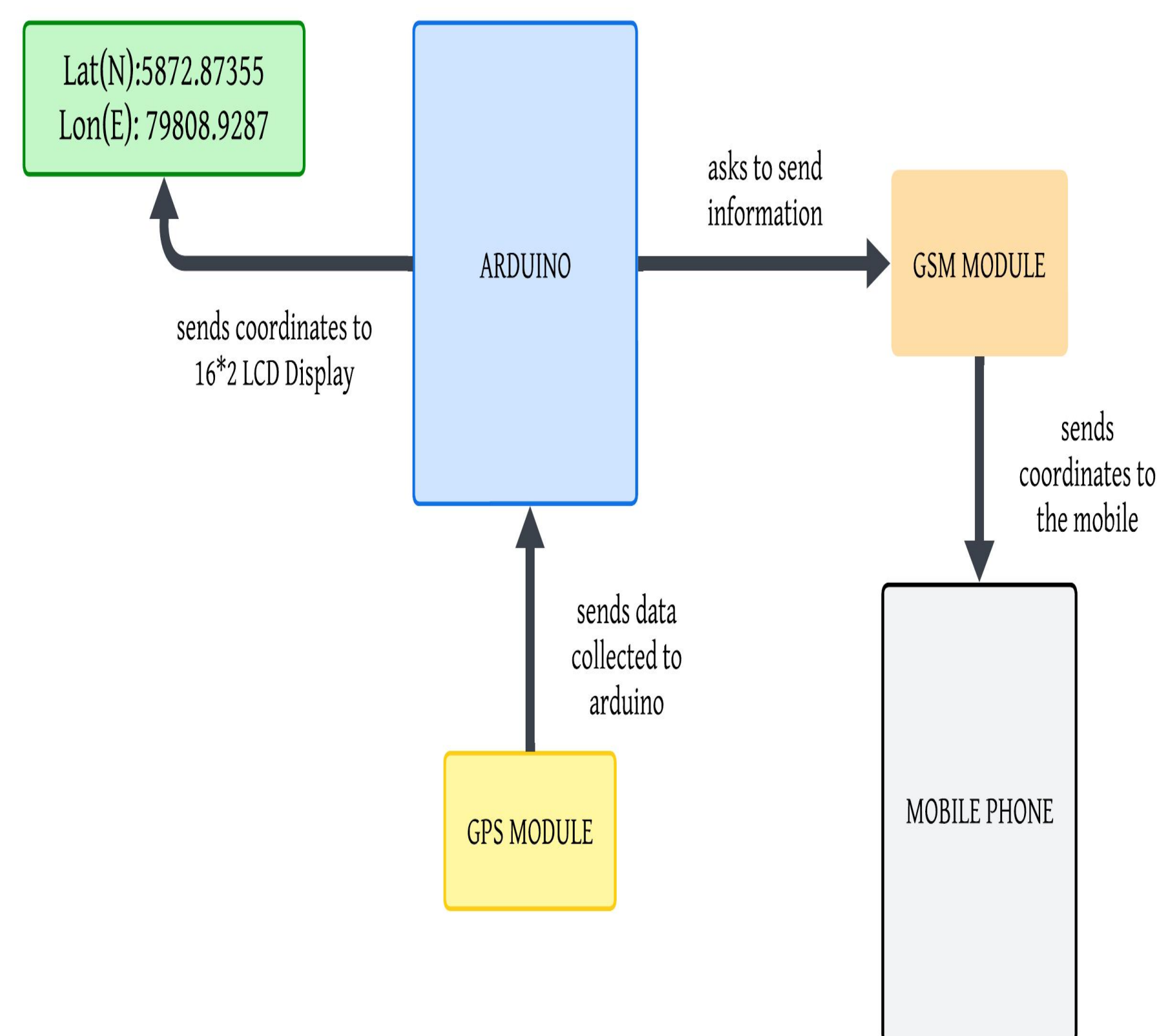


Fig: Block Diagram of Vehicle Tracking System using GPS & GSM Technology

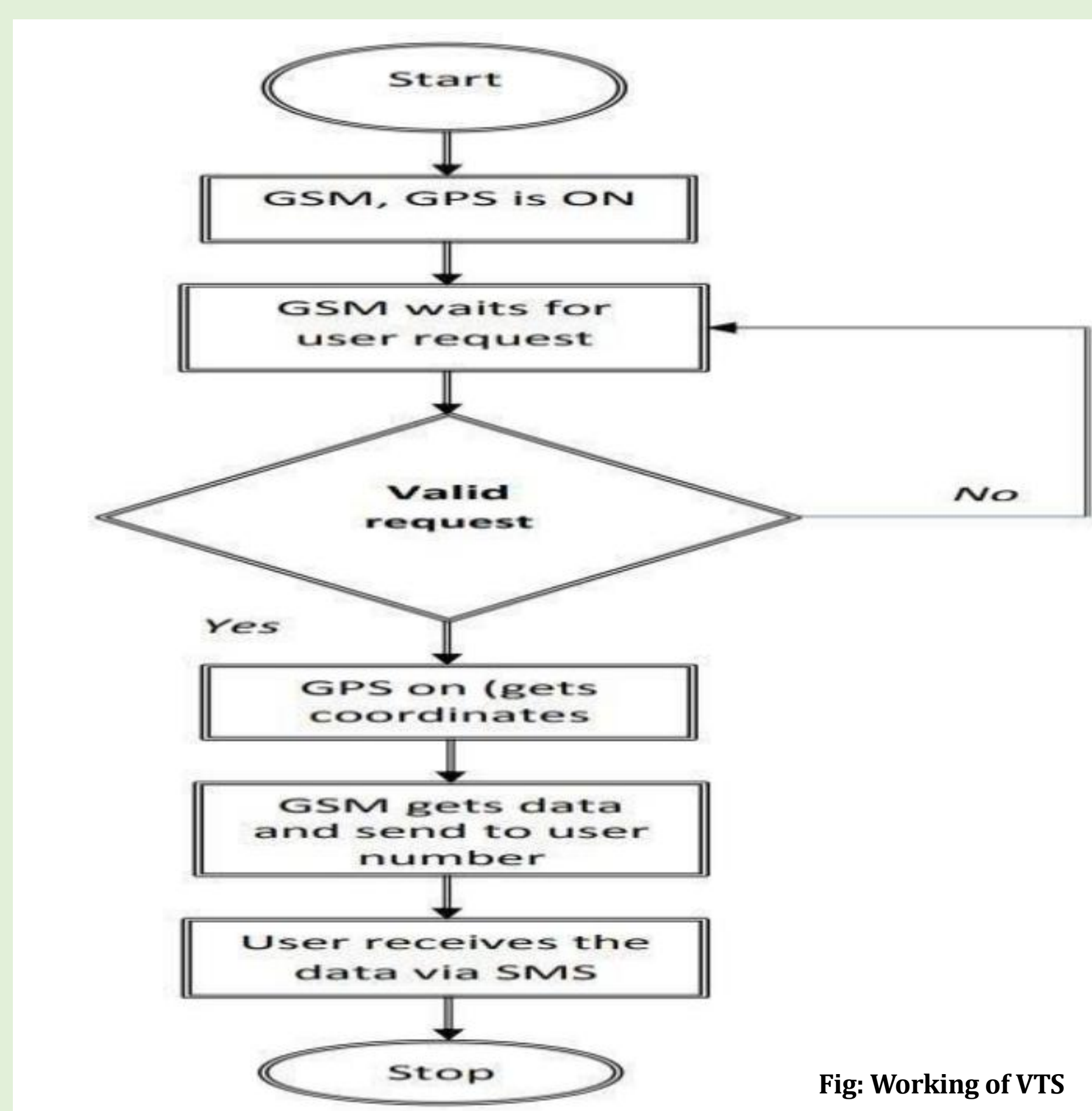


Fig: Working of VTS

## Results

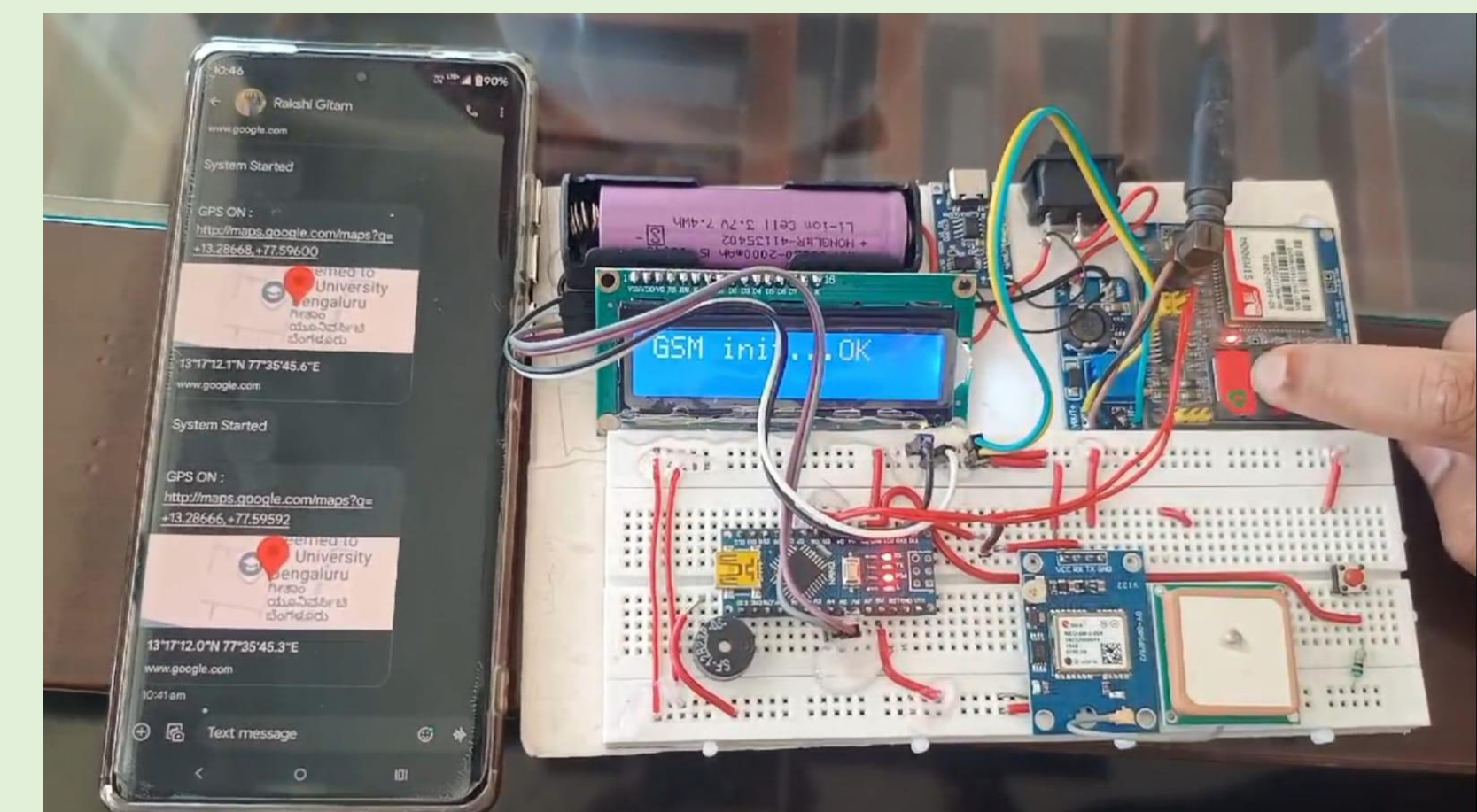


Fig: circuit working and sending location via sm

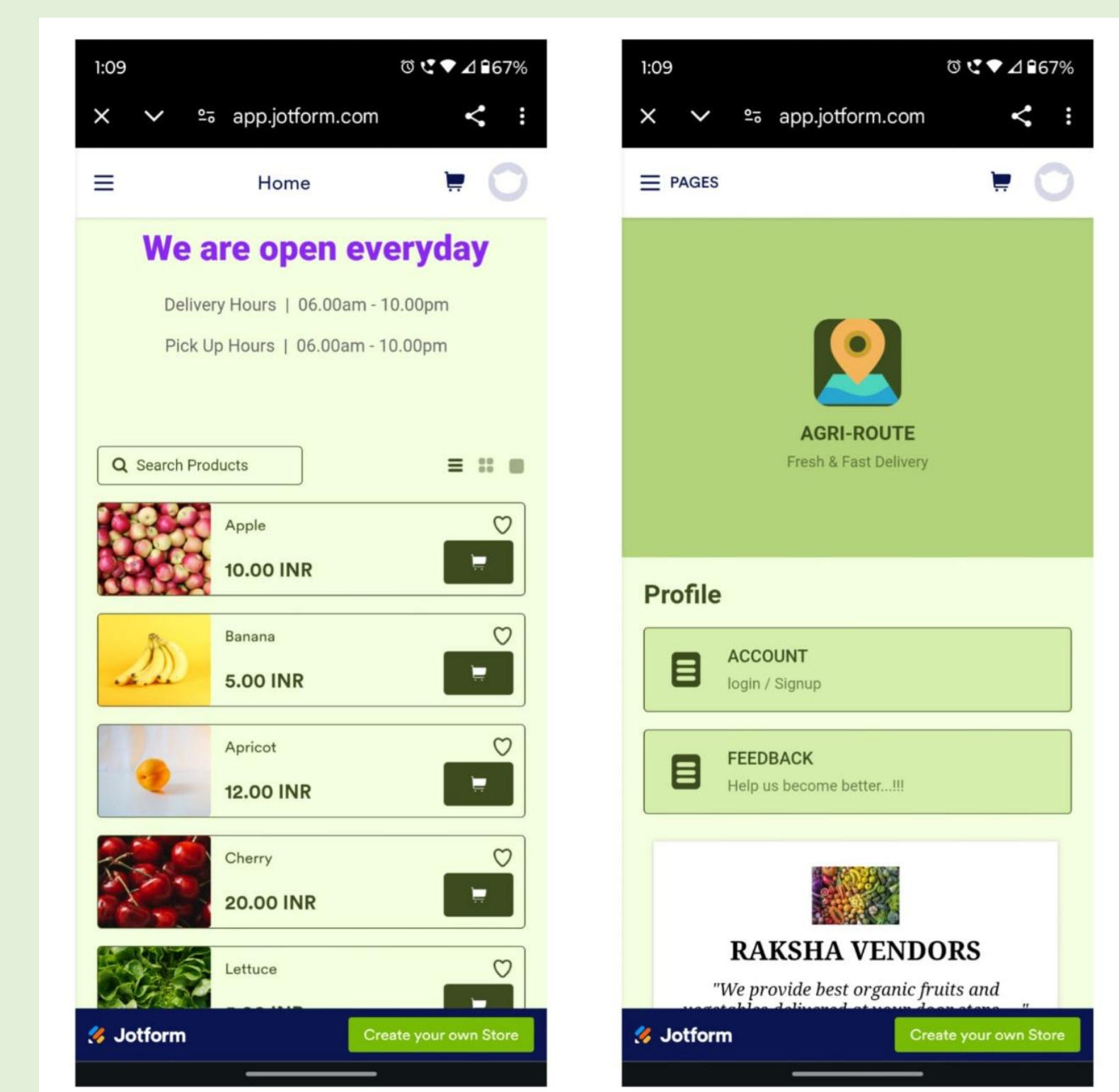


Fig: AgriRoute mobile application screenshots

## Conclusion

- GPS-GSM with Arduino Nano enables **SMS-based tracking**, emergency alerts via a panic button.
- Lithium-ion batteries and Arduino Nano **improve efficiency**, overcoming signal and power challenges.
- The Agri-Route app streamlines farmer-to-consumer transactions, enhancing **transparency and logistics**.

## Future Perspectives

- **Cloud-Based Tracking:** Integrate cloud for real-time GPS tracking via a web dashboard, minimizing SMS reliance.
- **Mobile App Upgrade:** Replace JotForm with a custom Android/iOS app featuring live tracking, push notifications, and analytics.
- **GPS Accuracy:** Upgrade to multi-band GPS for better tracking in diverse terrains.

## Impact on Society

- **Enhanced Rural Connectivity:** Real-time tracking improves agricultural logistics, ensuring timely deliveries and reducing losses.
- **Farmer Empowerment:** Direct market access through the Agri-Route app increases profits and reduces dependency on middlemen.
- **Improved Safety & Security:** Panic alerts and anti-tampering features enhance transportation safety for goods and people.

## To know more

GitHub link: [https://github.com/mbikki17/C15\\_CAPSTONE\\_AGRIRROUTE](https://github.com/mbikki17/C15_CAPSTONE_AGRIRROUTE)

Video link: [https://drive.google.com/file/d/1IjxzAi7S\\_k8l8hayktZfxL4s968hitFM/view?usp=sharing](https://drive.google.com/file/d/1IjxzAi7S_k8l8hayktZfxL4s968hitFM/view?usp=sharing)

