GeoTrace

Real Time Location Tracking

Business Plan

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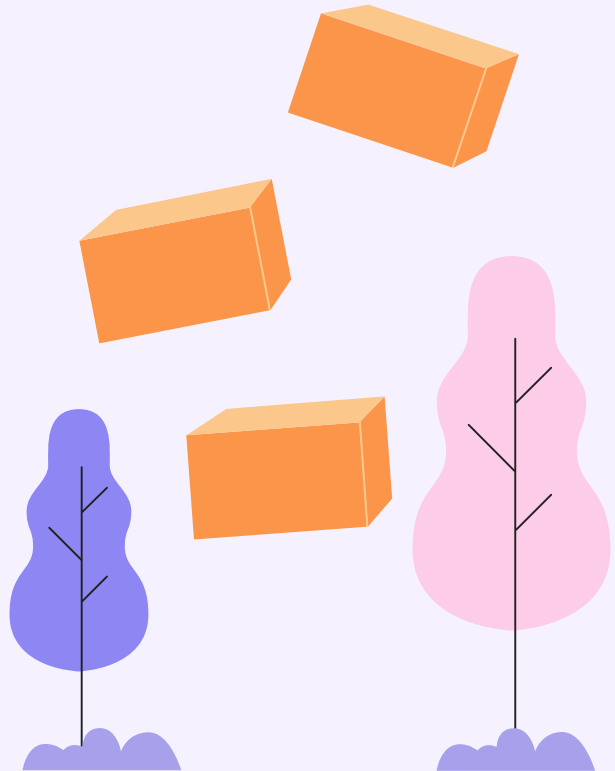


Mission statement

Our mission is to revolutionize logistics management by deploying innovative IoT solutions.

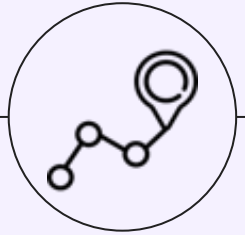
We are aimed to provide **real-time**, **accurate**, and **reliable tracking information**

01 Business overview

Our Research

More than 96%

respondents track their orders, with 43% doing so daily.



More than 90%

Willing to track their Delivery order

More than 50%

desire to be at home receiving their purchases rather than at pickup point.

Current Solution

Only track location at specific point

- Warehouse
- Interchange

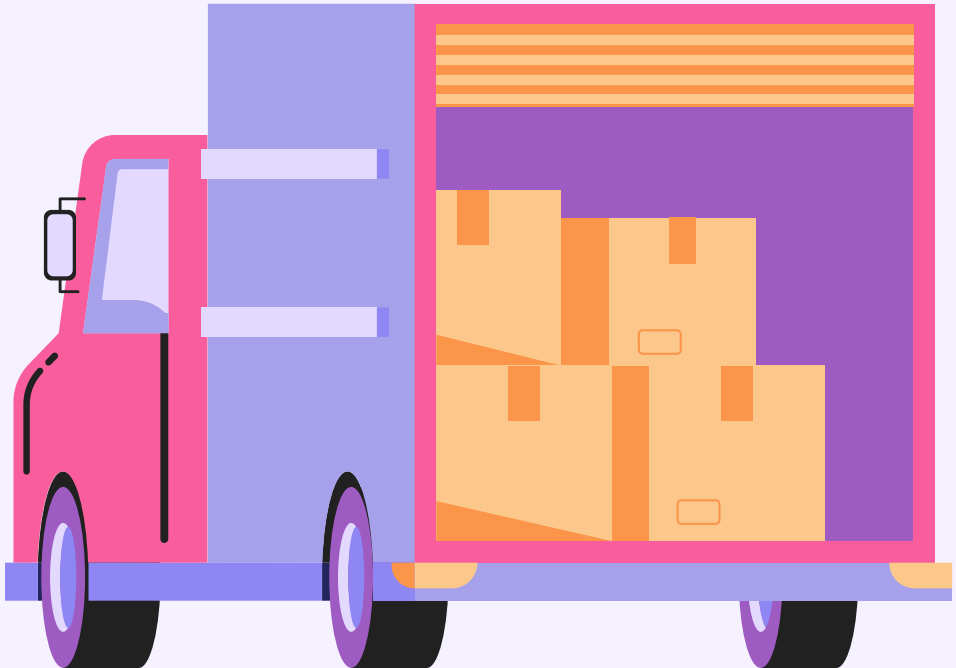
Wide range of delivery time

- On a specific day only
- Across multiple hours

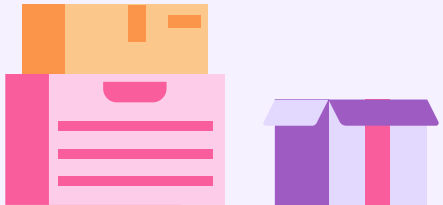
Handheld scanner when transition

- Require labour work
- Hard to scale

Our Solution

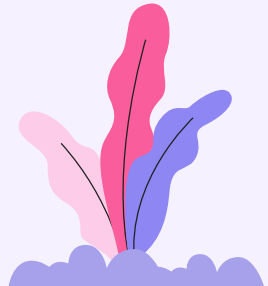


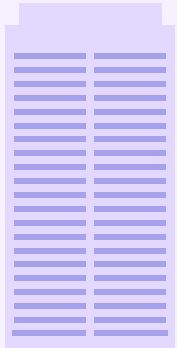
- Real Time Location Update every minute
- Estimated package arrival time accurate up to minute
- Automatically update state (warehouse, truck, etc.)

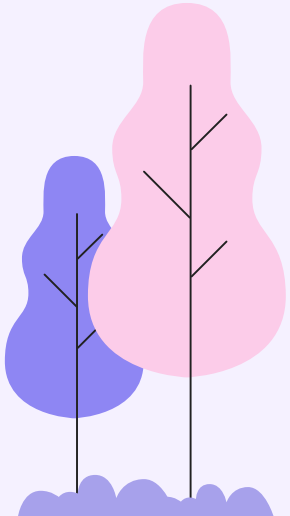


“Time is the scarcest resource, and unless it is managed, nothing else can be managed”

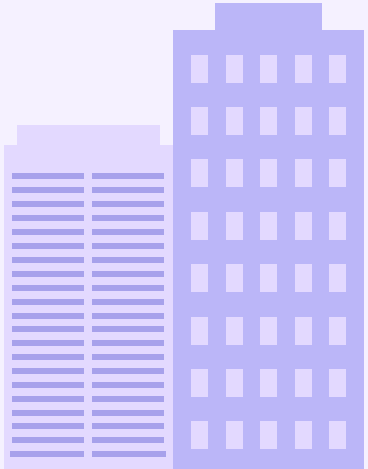
—Peter Drucker

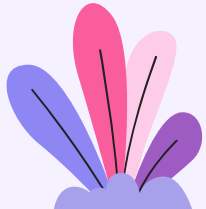


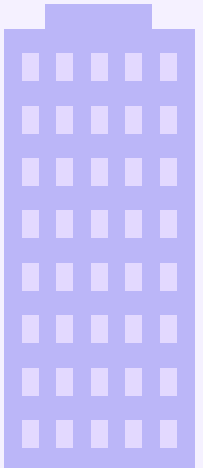




02 Market analysis



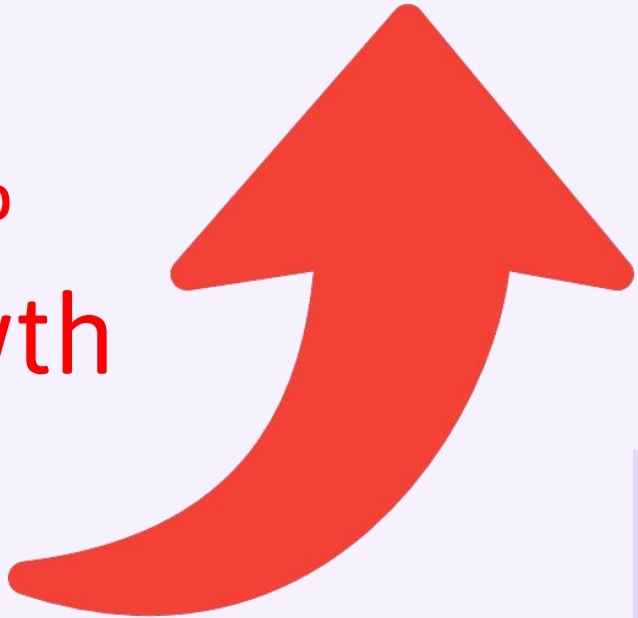




Market size

13.80B USD in 2028

200%
Growth



4.60B USD in 2023

Problem vs solution

Problem

User eager to know the real time location of their package.

Solution

IoT RFID scanner and GPS module installed at vehicle and warehouse.

For the businesses

User attraction - User eager to have real time location for their logistic

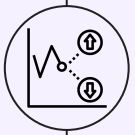
Route optimization - The real time updated location data help for find out the most efficient route

Cost optimization - Using RFID scanners instead of handheld scanners reduces the need for manual labor.

Big Data Analysis

Optimized Routing

The company can identify the most efficient routes, reducing fuel consumption and improving delivery times.

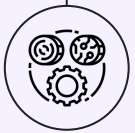


Predictive Analytics

Forecast delays, predict maintenance needs, and enhance delivery accuracy.

Inventory Management

Location data can help in tracking inventory in real-time, leading to a more efficient supply chain and reduced warehousing costs.



Asset Utilization

Companies can monitor how their vehicles and equipment are being used, optimizing their utilization and lifespan.

03

Technology

Sensors We Use

GPS-Neo6m

offers high sensitivity and quick positioning for accurate tracking.

UHF RFID Reader

Capable of scanning multiple items simultaneously from a distance, ensuring efficient and accurate inventory management.

NEO-6m

Cheap, Sufficient Accuracy, Low Power Consumption

Positional Accuracy	2.5 meters CEP
Update Rate	5 Hz
Time to First Fix	Cold start: 27s, Hot Start: 1s
Power Consumption	50mA at 3.0V
Sensitivity	-161 dBm tracking, -148 dBm cold starts
Cost	$ 1

UHF RFID-Scanner

Quick Response, Accurate, More data storage per tag

Tag Read Range	Up to 10 meters
Read Rate	Up to 1000 tags/ second
Protocol	ISO 18000-6C
Data Storage	Integrated with cloud or local databases
Security Features	Tag authentication, encryption capabilities
Cost	$ 500

Communication Technology

LoRaWAN

- Long Range
- Sufficient Bandwidth

MQTT

- Lightweight
- Low Power Consumption

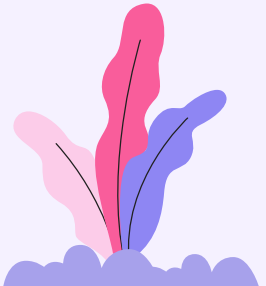
LoRaWAN

Long range support, Long battery life

Range	2-5 km
Battery Life	10+ years
Topology	Star-of-stars topology
Data Rates	Varies from 0.3 kbps to 50 kbps
Security	End to end encryption
Cost	$ 70

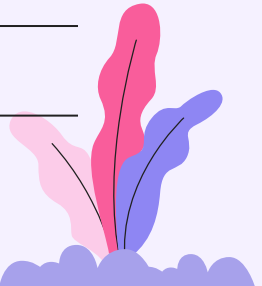
WHY Not Wi-Fi/Cellular ?

LoRaWAN	Cellular
Longer Range (2-5 km)	Shorter Range (100 m)
Lower Power Consumption	Higher Power Consumption
Lower Bandwidth (Enough for our needs)	High Bandwidth
Cheaper	More expensive



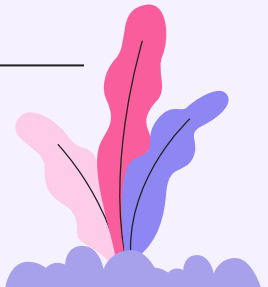
MQTT

Type	Messaging and data exchange protocol
Standard	ISO 20922
Data Format	Binary, small message size
Topic-Based Publish-Subscribe Model	Decouples producers and consumers of messages
Retained Messages	Allows messages to be retained for new subscribers
Pervasive	Limited

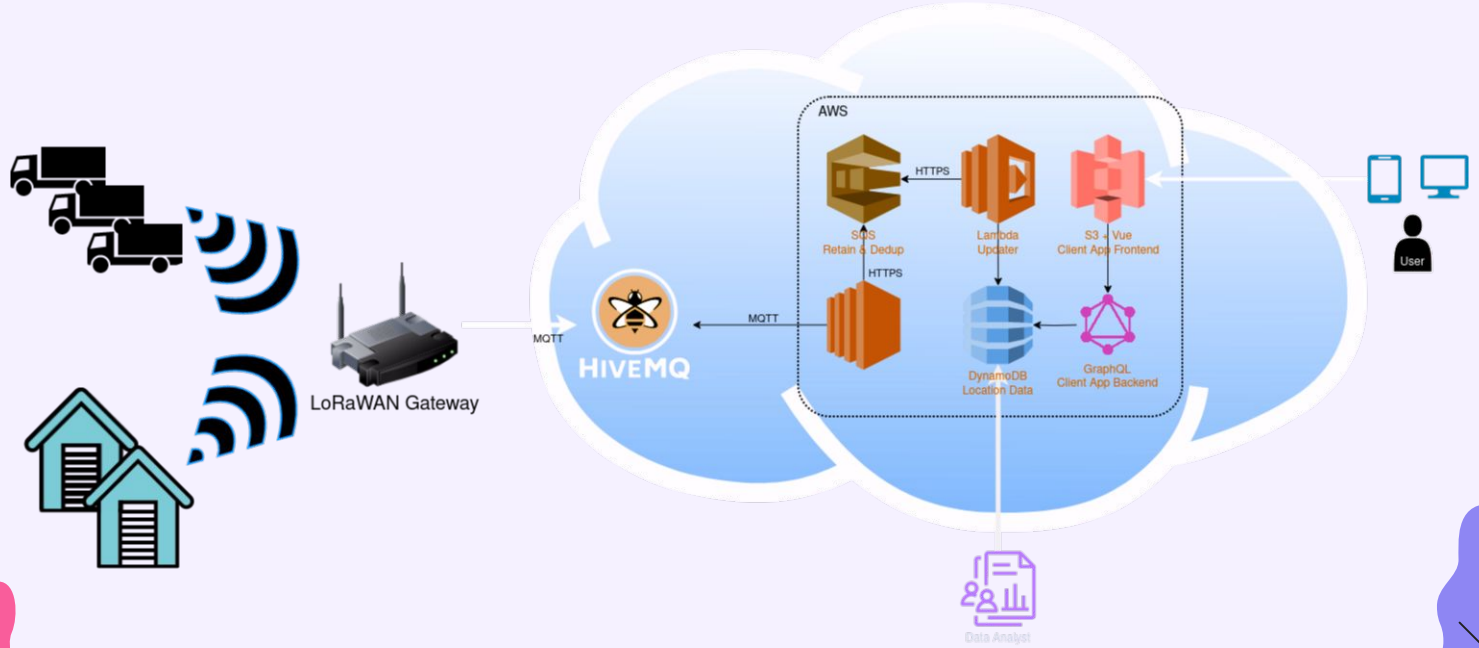


MQTT VS WebSocket

MQTT	WebSocket
Small overhead	Small but initial handshake and frame based messaging
Message oriented	Full duplex communication
Design for IoT (low power consumption)	Suit for web applications
Publish/Subscribe Pattern	Point to point communication
Support QoS	Not supported



Architecture



Extendable Feature

Package Protection

By introducing sensor like accelerometer, gyroscope, hygrometer at the RFID tag to alarm for the vergil

Accident Report

The product can automatically call the emergency services with geolocation data when any accident happed

Automated Alerts

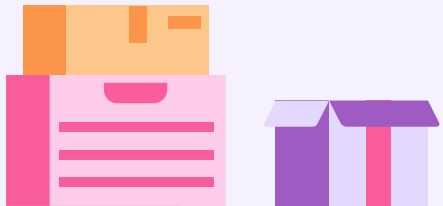
Implement notifications for status changes, delays, or successful deliveries.

Geofencing

Define virtual boundaries and receive alerts when packages enter or exit specified areas.

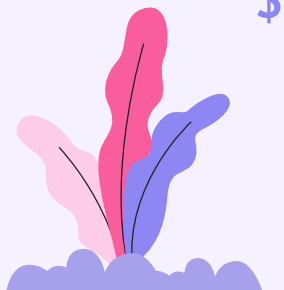
04

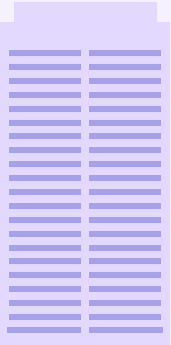
Operation plan



Setup and Running Cost

Edge Devices	Infrastructure	Running
RFID Scanner & GPS module	LoRaWAN Gateway	AWS Cloud Service
Micro-controller	Local Computing Node	RFID Tag per package (Assume 1M package)
$600/device	$4000/base	$60000/month





Real Time Positioning System

$560000

Setup Cost[1]

affordable and accessible

$300000

Monthly Net Income[2]

low cost and labor-efficient

864000

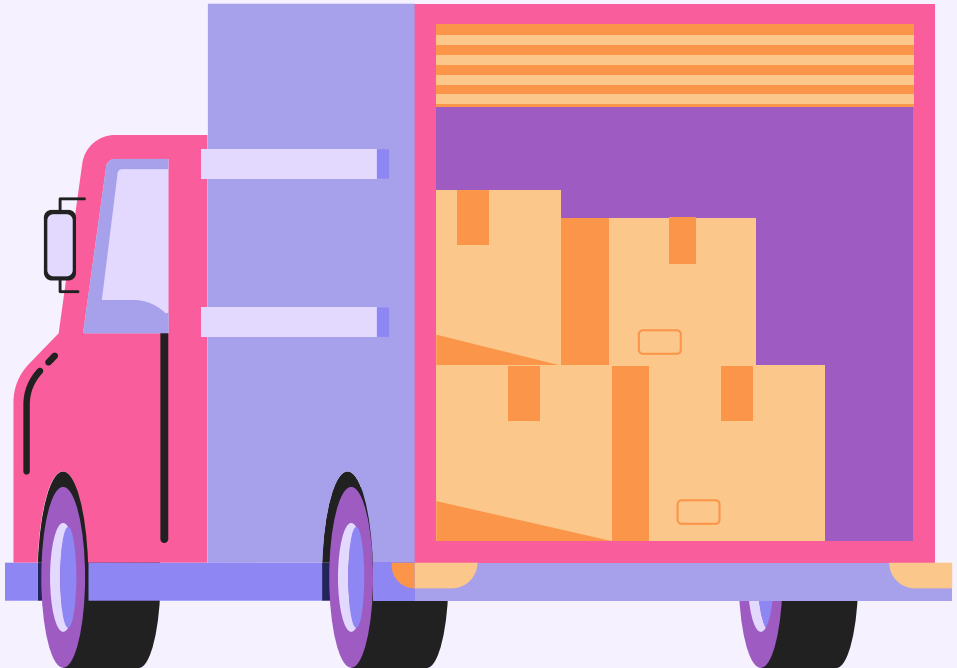
Monthly Data

big data analysis

1. Assume 50 warehouse/interchange and 600 truck to handle 1M package per month.
2. Assume reduce 100 worker of salary of $14 working 10 hours per day

GeoTrace

Unlock Efficiency, Master Logistics!



Thanks

Does anyone have any questions?