

Group 3

WIRELESS ELECTRONIC NOTICE BOARD USING GSM

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Introduction

01

GSM wireless electronic bulletin board solves real-time information gaps at bus stations, enriches passenger experience and optimizes public transportation management.

It provides accurate bus times, streamlines information distribution and reduces passenger wait times, promoting sustainable transport operations.

Target customers include state and public transportation management organizations eager to embrace electronic billboard projects.

This modern solution addresses community needs, reduces congestion, and elevates daily commuting comfort.





Reduce traffic congestion

Our project provides comfort and enhances the quality of our customers' public transport experience

That makes the number of people using public transport increase and reduce the number of private vehicles



02 MOTIVATION



- Public transport will be the trend in the future
- According to hanoimoi.vn, in September 2023, public transportation welcomed more than 417 million passengers, an increase of 56.8% compared to the same period in 2022.

Pain point

Service attitude



Inconvenience





Benefit

Environmental
pollution
reduction

Traffic
congestion
reduction

Personal cost
savings

Noise pollution
reduction

Enhancing
traffic
safety

Supporting smart
urban development



Target's customers

Government Agencies

They are key decision-makers in improving public infrastructure and services.

Public Transport Authorities

Organizations that manage and operate public transportation systems, including bus and train services.

Transit Station Managers

They require real-time information systems to manage passenger flow and station services effectively.

City Planners and Urban Developers

They seek solutions that integrate technology for more efficient city management.



04



Circuit Principle





04

Microcontroller (AT89C51): as the brain of the system, controlling and coordinating the functions of other components. It receives data from the GSM module and processes it to update the display

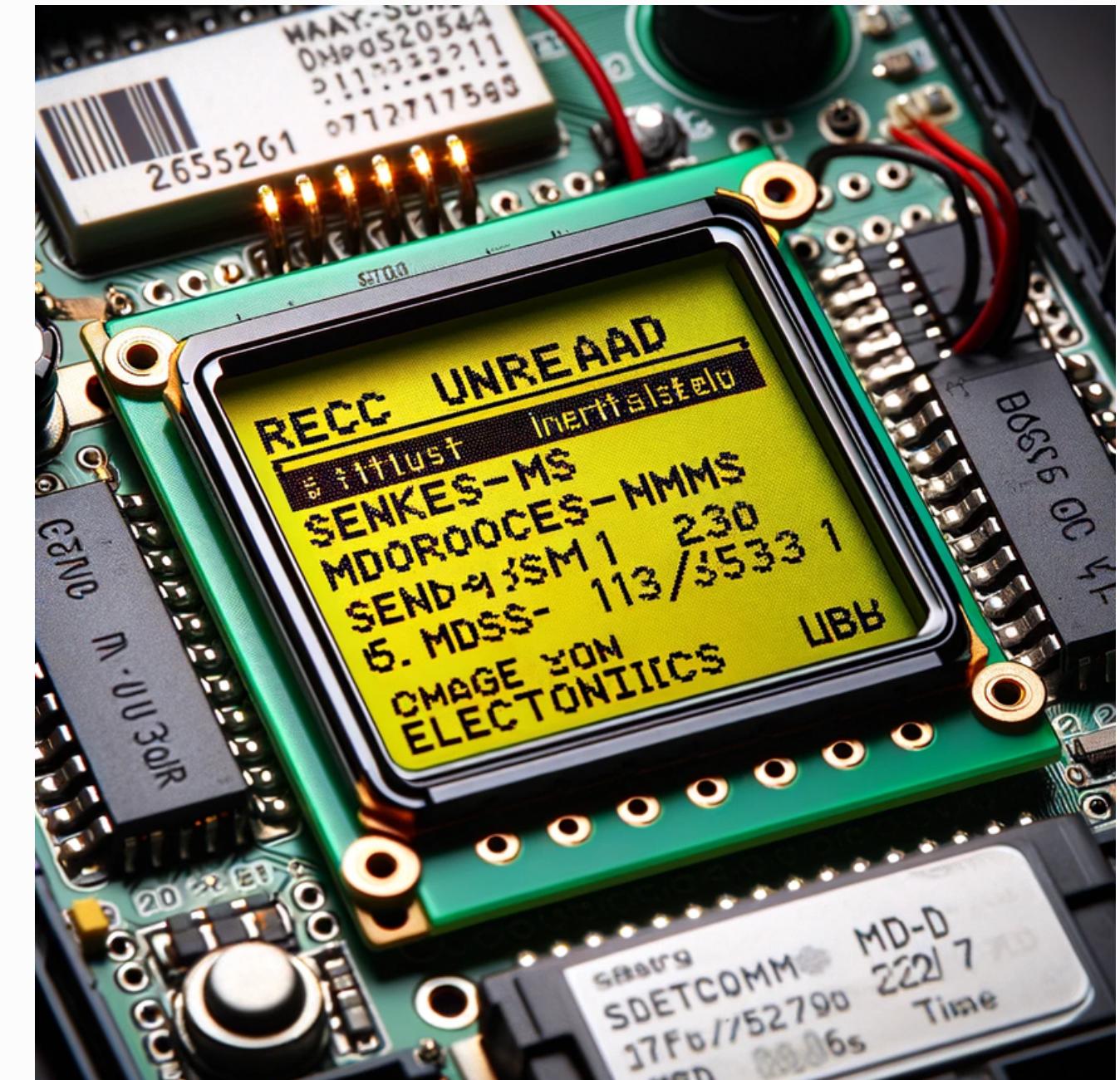
GSM Module: This module facilitates communication between the electronic notice board and a mobile device. It can receive SMS messages and displayed on the notice board.

Display Unit: 16 x 2 LCD Display. It shows the information received through the GSM module.

Power Supply: A stable power supply is crucial for the proper functioning of the system. This can be achieved using a regulated power supply or batteries, depending on the application.

Text-to-Speech (TTS) Module: Converts text messages into audible speech. Connect this module to the microcontroller.

Speaker: An audio output device that plays the converted speech. Connect the speaker to the TTS module.



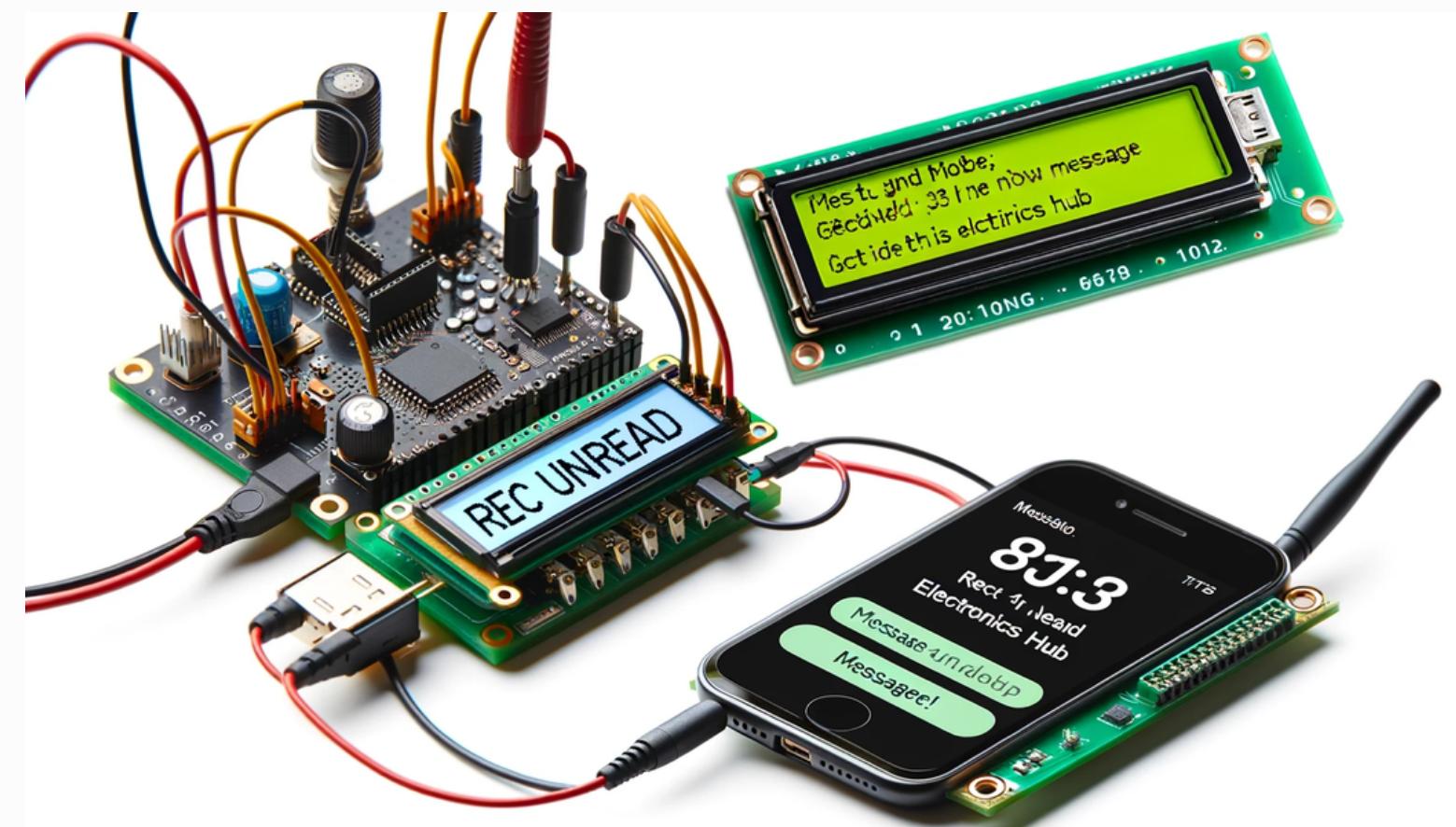


04

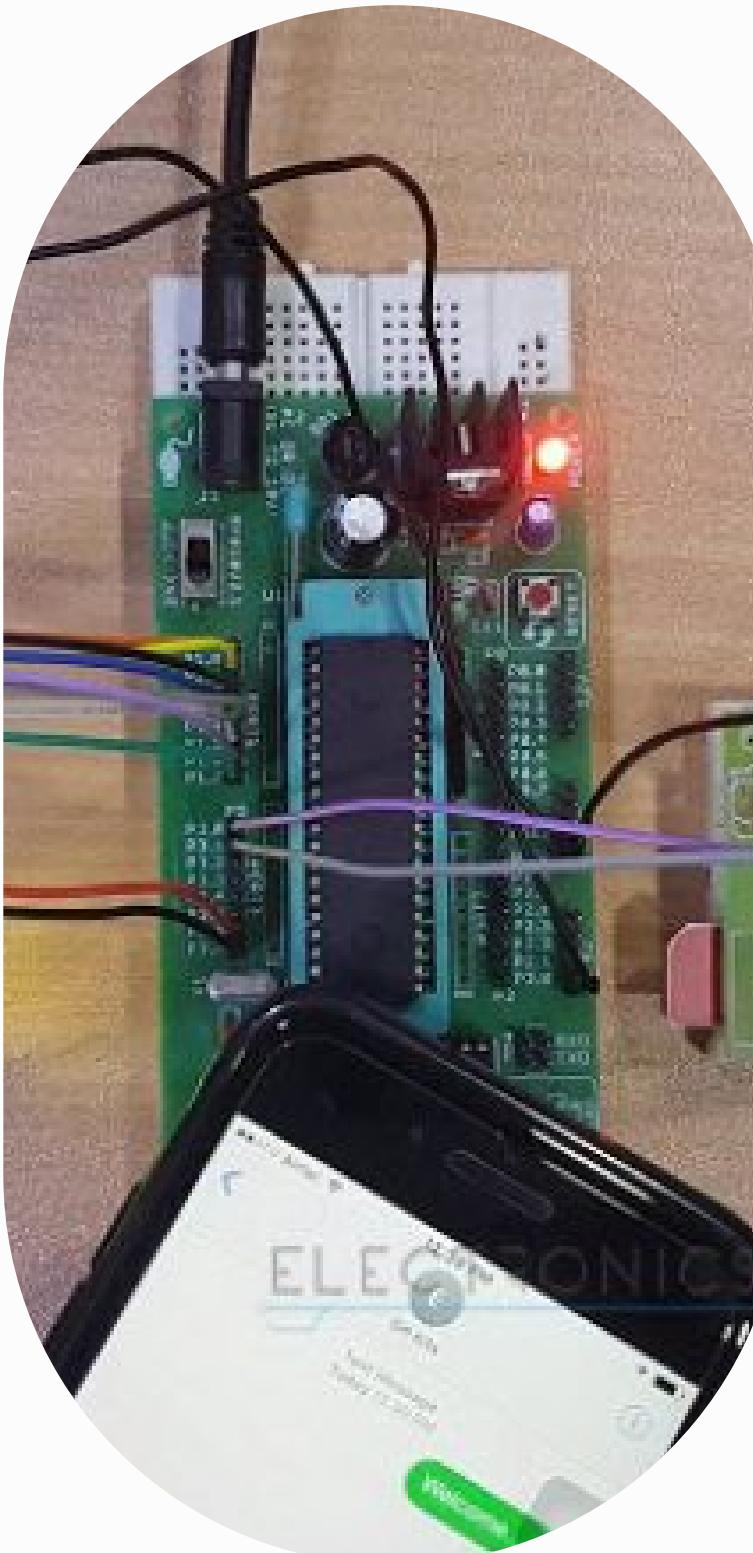
Message Reception: When a message is sent from a mobile phone, the GSM modem, connected to both the microcontroller and the display unit, receives it.

Message Indication: The GSM modem alerts the microcontroller of a new message with a command like +CMTI: "SM",3, where "3" indicates the new message's position in the inbox (third message).

Reading the Message: To display this unread message on the LCD, a command AT+CMGR=3 is sent to the GSM modem. The number "3" here refers to the location of the message to be read.



05



Demo simulation





U1

17 P3.7/RD
16 P3.6/WR
15 P3.5/T1
14 P3.4/T0
13 P3.3/INT1
12 P3.2/INT0
11 P3.1/TXD
10 P3.0/RXD
28 P2.7/A15
27 P2.6/A14
26 P2.5/A13
25 P2.4/A12
24 P2.3/A11
23 P2.2/A10
22 P2.1/A9
21 P2.0/A8
32 P0.7/AD7
33 P0.6/AD6
34 P0.5/AD5
35 P0.4/AD4
36 P0.3/AD3
37 P0.2/AD2
38 P0.1/AD1
39 P0.0/AD0

VSS VDD VEE RS RW E D0 D1 D2 D3 D4 D5 D6 D7
1 2 3 4 5 6 7 8 9 10 11 12 13 14

P1.7
P1.6
P1.5
P1.4
P1.3
P1.2
P1.1
P1.0
EA
ALE
PSEN
RST

XTAL2
XTAL1
18
19

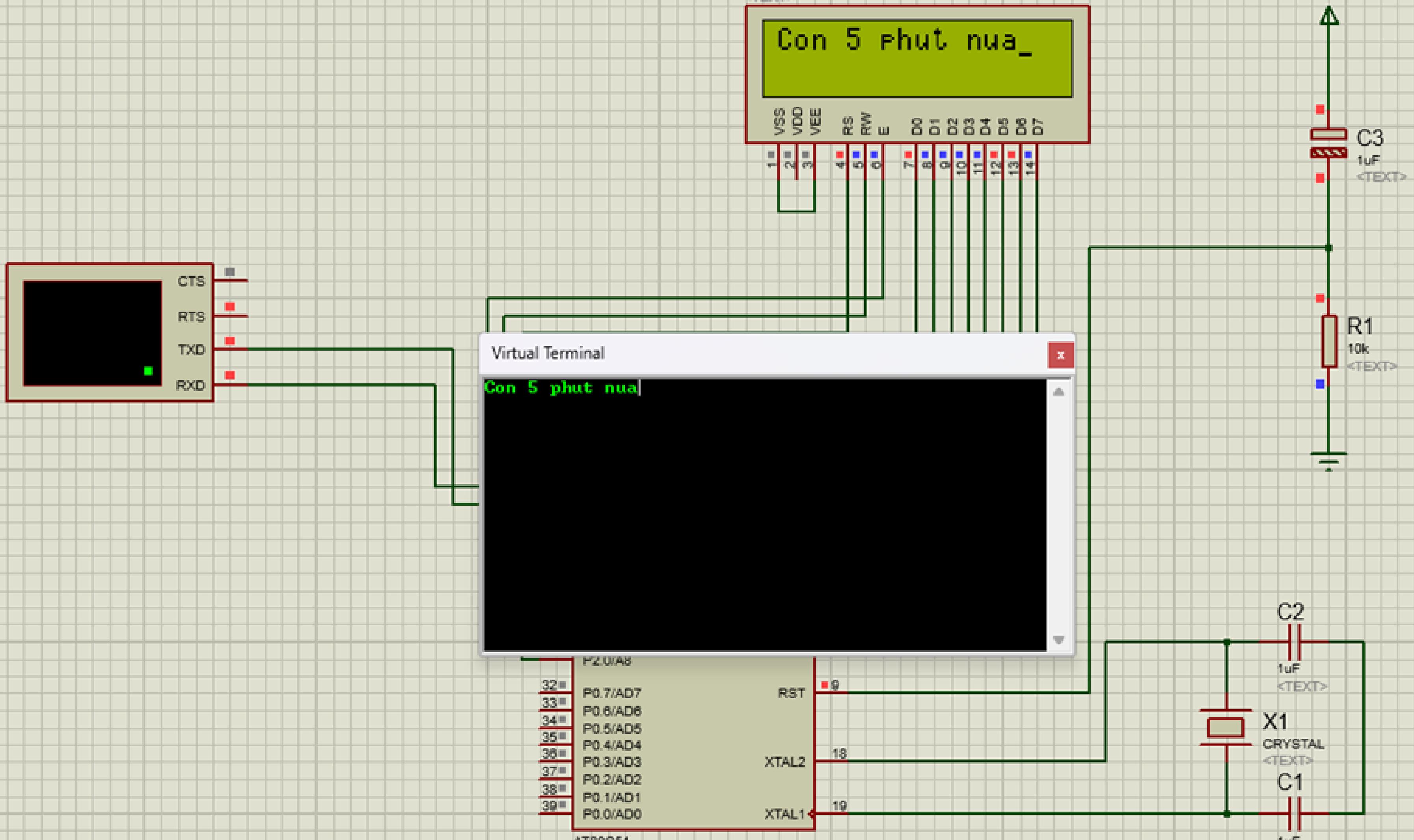
C3
1uF
<TEXT>

R1
10k
<TEXT>

C2
1uF
<TEXT>

X1
CRYSTAL
<TEXT>

C1





06

Product & Marketing



Product



Marketing

**Product, Price,
Place, Promotion**





Product

About

This device is strategically positioned at bus stations to effectively monitor and track buses as they approach the terminal. Its primary function is to gather real-time data on buses that are in the process of entering the station, providing valuable information for scheduling, management, and passenger convenience.



Technology

GSM (Global System for Mobile Communications): Is an international mobile communication standard widely used for mobile networks

Wireless Connectivity

With integrated GSM technology, our notice board allows you to update content from anywhere, at any time.

Versatility Across Industries – Infinite Applications

Whether in education, business, or community organizations, the Wireless Electronic Notice Board using GSM is a multitasking solution, meeting the diverse information needs of every sector.



Marketing Strategy (4Ps)

Product

Flexibility in displaying diverse content, including announcements of vehicles arriving at the station, arrival time, and accompanying voice for the visually impaired.

Price

Provide technical support service packages such as regular maintenance to turn the product into a comprehensive solution.

Apply discount policy for large orders or for partners who contribute to product implementation.

Organize special promotions for early orders.

Place

Placed at large bus stations such as My Dinh, Kim Ma, Giap Bat with many people to maximize access to products.

Promotion

Use Google Ads and Facebook ads to reach a large audience and deliver a message about the benefits of your product.

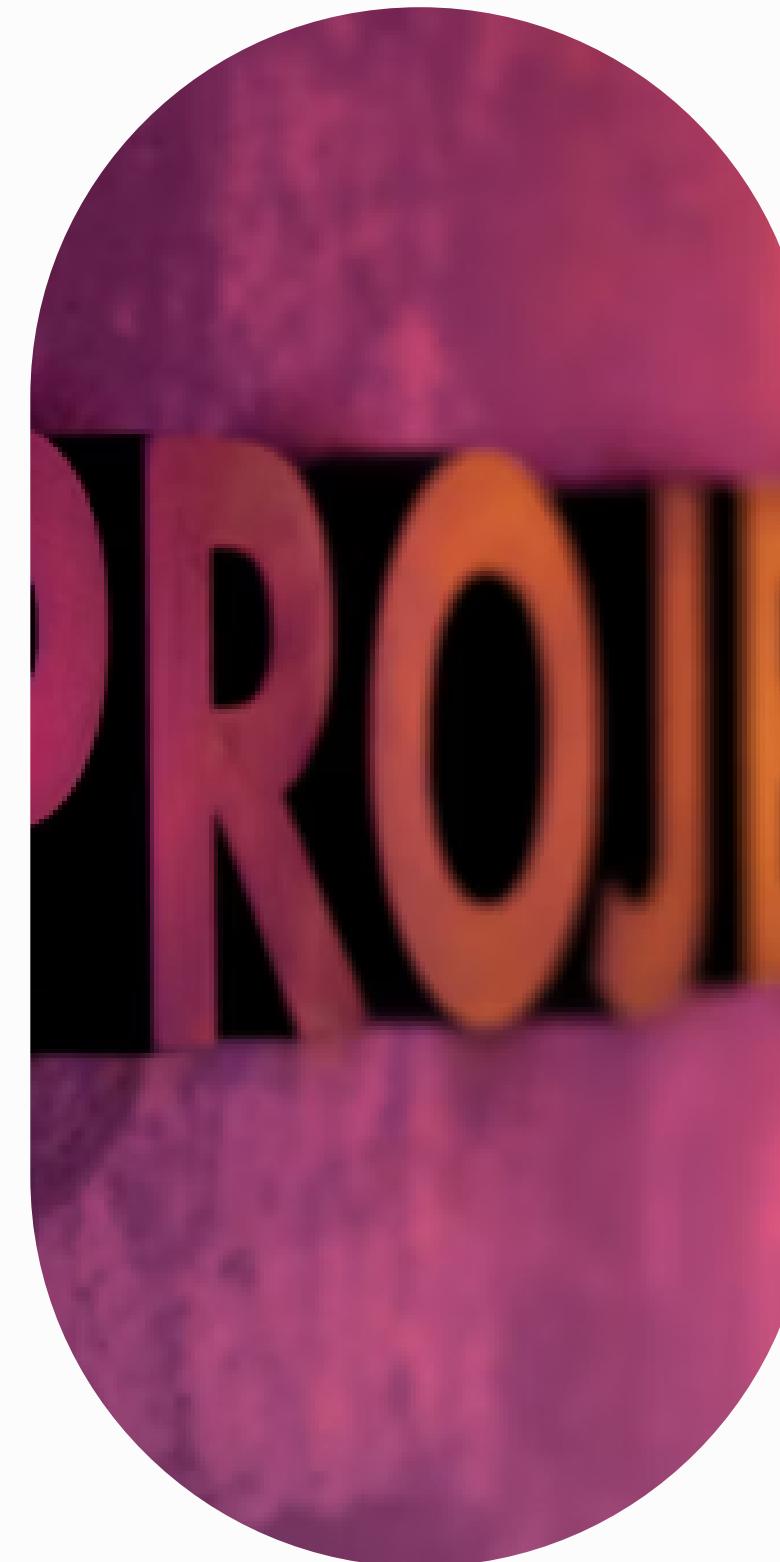
Create high-quality promotional videos to illustrate how products improve the quality of public services.

Promote logistics and maintenance programs to encourage long-term products.





07



Cost & Project outcome



Cost

DEVICE PRICE

SIM900A 800.000 vnd

MicroController AT89C51 200.000 vnd

LCD 2.000.000 vnd

Other cost 400.000 vnd

LABOR COST

75 hours working x 20.000 vnd

Total cost: 4.900.000 vnd

Project outcome



Original product price 4.900.000

Buy from 5 products get 5% off 4.655.000

Buy from 10 products get 15% off 4.165.000

Buy more than 15 products get 20% off 3.920.000

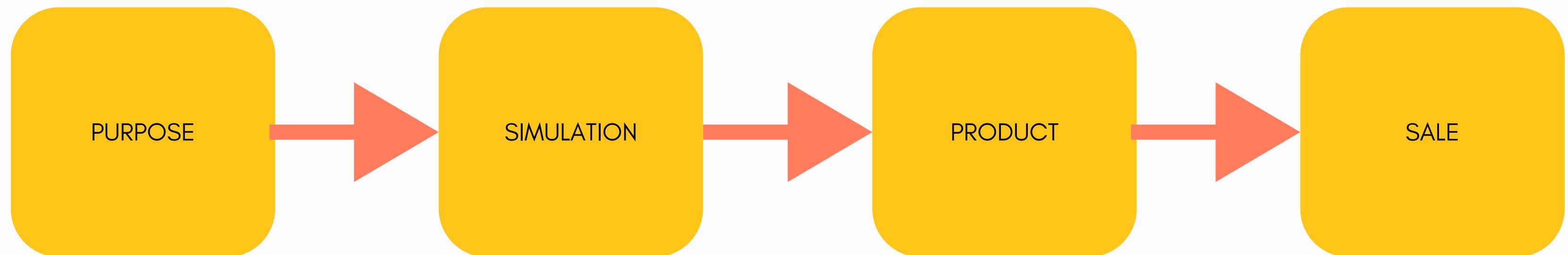
**Price information
and incentives**

Applies to the first 100 products in the store



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Conclusion



Thank You

For Listening

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