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MOBILE CHARGING ON COIN INSERTION

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ABSTRACT

The project aims to develop a coin -controlled mobile charging system for public places. Many people face battery drainage problems while traveling or out, and it is often difficult to find charging points. This system provides a practical solution where users can charge their mobile phone by putting a coin.

When a person wants to charge their cellphone, they must insert a coin into the system. A coin detects the sensor coin and sends a heart rate signal to the microcontroller. The microcontroller then processes this signal and activates a relay, which acts as an electromachan switch. It delivers 230V, 50 Hz current to the relay charging connector, so the user can connect to his mobile phone to charge.

The charging period is proportional to the number of coins inserted directly. The 16 × 2 LCD screen is integrated into the system to display the remaining charging time. As time increases, the performance is updated accordingly. When the time is over, the microcontroller closes the baton, which prevents the power supply to the charging connector, and ensures controlled access.

The system is useful in places such as railway stations, bus racks, shopping malls and airports, providing simple and efficient mobile charging solutions.

Keywords: Public Places, Mobile Charging, Coin Sensor, Microcontroller.

I. INTRODUCTION

TIn today's digital age, mobile phones are needed, but finding a charging point in public places can be challenging. The coin provides a charging solution for payment for places such as mobile charging of railway stations, bus stops, shopping malls and colleges at Coin Insertion Project.

The system works through a coin -ceptor module, which detects a valid coin and reflects a microcontroller (eg atomic ga). The microcontroller then activates a relay circuit to deliver power to the charging port for a specific period. When the time is over, the system automatically cuts the power, which ensures controlled and proper use.

This project is cost -effective, easy to use and scalable. Digital payment options, IoT-based remote monitoring and integration of solar energy can be increased, making it a smart infrastructure solution for public places. With its simple but effective design, it provides a reliable charging feature for mobile users.

II. METHODOLOGY

System design involves integration of several main components:

1. Modules that accept coins to detect valid coins.

2. Microcontroller (eg atmega328) coin to treat input and control the system.

3. Timer circuit to regulate charging time.

4. Charging port (USB) for mobile phone connections.

5. Relay circuit for power control.

The functioning theory is as follows: When a valid coin is inserted, the system begins to charge and transfer for a predetermined time. After this time, the charge stops automatically.

6. LCD screen (16 × 2) - charging period, coin detection status and remaining time screens.

7. Power supply unit - offers regulated Dick voltage to microcontrollers and other components.

8. Bajer/LED indicator - when a coin is inserted or provides sound or visual notice when the charging is complete.

9. Overcracker Protection Circuit - prevents excessive power currents for the protection of mobile devices and cycle.

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10. Attachments and safety locks - prevent internal components from tampering and ensuring shelf life in the system in public places.

III. MODELING AND ANALYSIS

1. System modeling

The system consists of different hardware and software components that work together that provide time-based charging solutions.

Entrance component:

- Coin Septor Module: Detects valid coins and sends a heart rate signal.
- Microcontroller (eg ATMEGA328): Treat the entrance and controls the system current.
- Hours circuit: Maintaining the charging period depending on the coins inserted.

Treatment and control:

- Relay circuit: Works as an electromechanical switch to control the power supply.
- LCD screen (16 × 2): Displays charging time, status and instructions.
- Bazar/LED indicator: Alerts users when they are charged or stopped.

Exit component:

- USB -charging port: Provides a mobile device connection.
- Power supply unit: Converts AC to stable operations DC.
- Overcrack Protection Circuit: ensures safe charging.

2. Functional analysis

- Coin verification: The system only accepts specific coin types based on predetermined values.
- Charging time figures: Microcontroller determines the duration based on the coin.
- Power control: The relay is triggered to start charging and closed automatically when the time is over.
- User Interaction: LCD guides the user by showing instructions and time again.
- Security measures: The system includes short-circuit and overcc protection.

3. Result analysis

- Response time: Time for charging activation from coin insert.
- Accuracy for coin detection: Ensuring only valid coins triggers the system.
- Electricity efficiency: Reduce passive power consumption.
- Reliability: To ensure frequent system functions in public places.
- Stability: Protect the system from tampering and environmental damage.

4. Cost and viability analysis

Component cost: Evaluation of the possibility of microcontroller, relay, coin sensor

5. Simulation and test

- Microcontroller cod testing: Use a simulation tool such as Proteus or Arduino idea.
- Power supply load test: Ensure stable voltage and power supply.
- Coin detection tests: To check the accuracy of coin action and rejection.
- Testing of time control: Verification that the charging period correctly correctly corrects.

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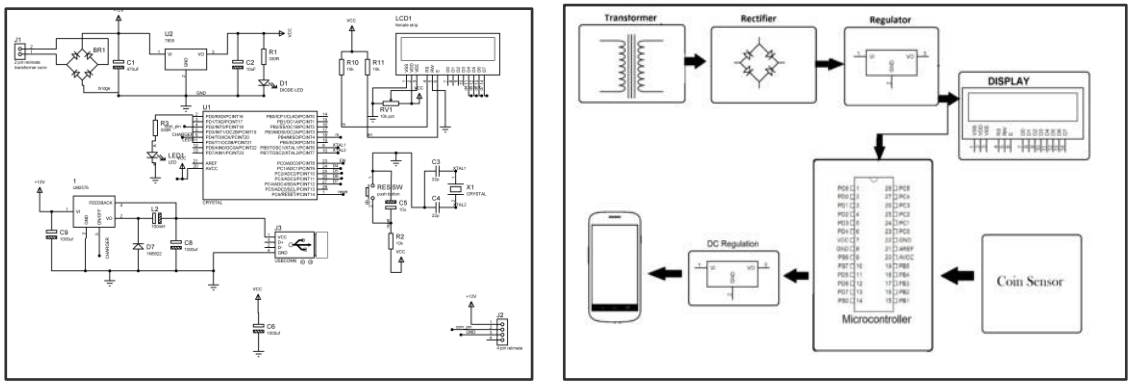

Figure: circuit diagram and block diagram

IV. RESULTS AND DISCUSSION

The system successfully detects valid coins and provides timely charging, ensuring both efficiency and convenience. When a valid coin is inserted, the system immediately activates the charging process for a predetermined period. Integration of a microcontroller, relay circuit and hours ensures that charging is automatically closed after the allocated time, prevents unnecessary power consumption.

This system is designed to make cost -effective, making it a reasonable solution for public use. The simple and user -friendly interface allows individuals to easily serve it without the need for technical knowledge. The LCD screen displays clear instructions, guided users through the process and the remaining charging time.

Due to its compact and durable design, this coin -controlled mobile charging stations can be installed at various public places such as railway stations, bus racks, shopping malls, airports and educational institutions. It acts as a reliable charging solution for the needy people, especially in emergencies or when they do not have access to their individual chargers.

In addition, the system can be modified to accept different coins or to integrate digital payments in the future, versatility can be increased. Overall, the project provides an efficient and practical solution for mobile charging in public sectors.

V. CONCLUSION

This article presents a cost -effective and practical solution for mobile charging in public places. Coin -driven mobile charging system meets remote control and increasing demand for mobile charging in public places. This provides an easy but effective way to bridge the difference in emergency charging needs.

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