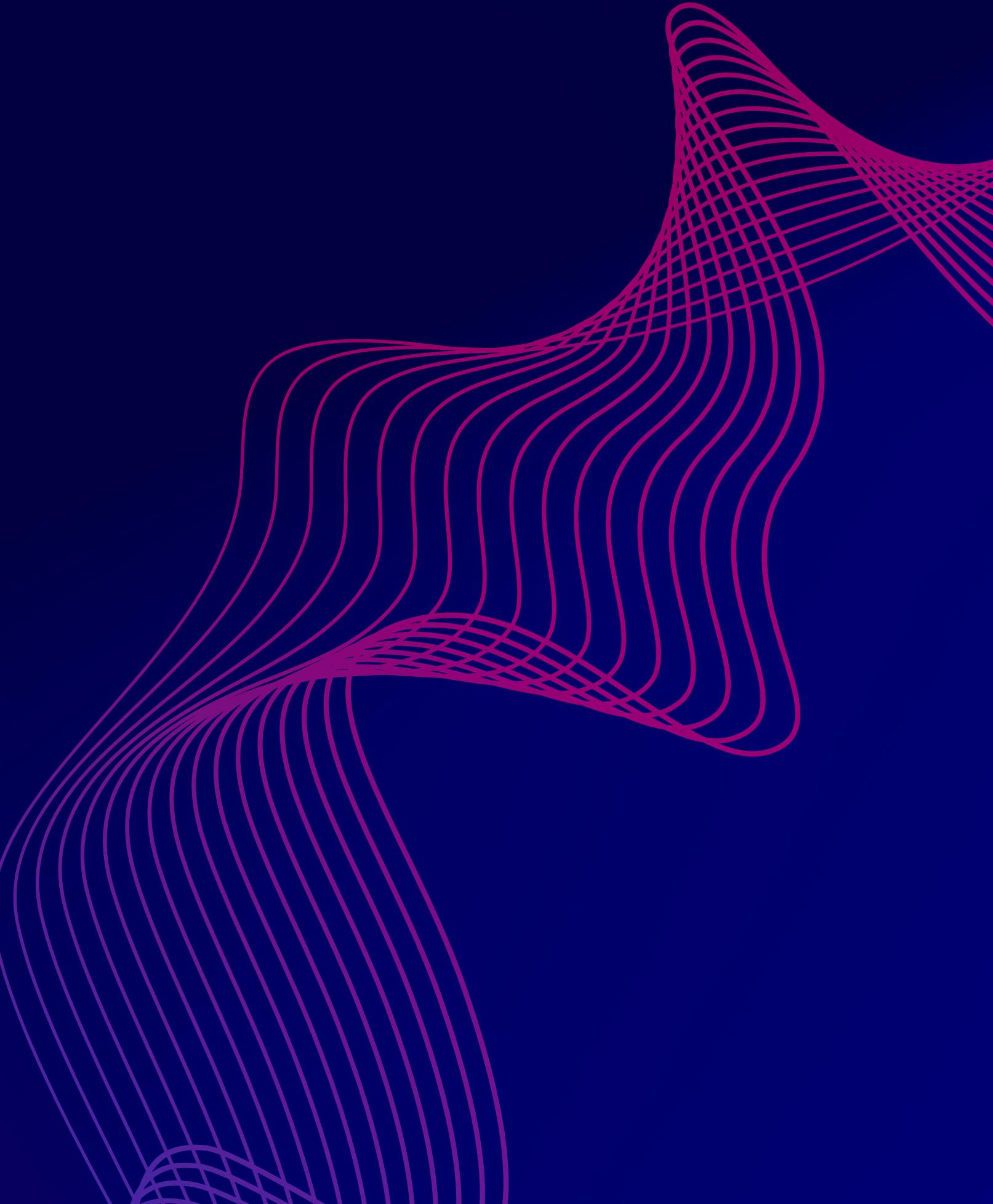




SMART CRADLE SYSTEM



TEAM MEMBERS:

S.INDHUMATHI

21CSR034

M.S.JAMUNA

21CSR035

C.MOHANA PRIYA

21CSR062

GUIDED BY:

DR.Ms.LATHA JOTHI

ABSTRACT:

- This paper presents a smart cradle system leveraging Internet of Things (IoT) technology for monitoring Babys in real-time.
- The system incorporates three key functionalities: environmental sensing, health monitoring, and remote alerts.
- The proposed smart cradle system demonstrates the potential of IoT in enhancing Baby care and safety, providing caregivers with valuable insights and peace of mind.

SCOPE AND OBJECTIVE

- 1 *Real-Time Monitoring*
- 2 *Safety Alerts*
- 3 *Scalability*
- 4 *Data Analysis*

EXISTING SYSTEM

Manual Rocking :Traditional cradles were manually rocked by caregivers or parents to soothe the baby and help them fall asleep.

No Monitoring: There was no system in place to monitor environmental factors like temperature,humidity, or baby's vital signs.

Limited Safety Features: Safety features in traditional cradles were limited, with basic measures to prevent accidental falls or injuries.

Basic Design: Cradles had a basic design with limited features, usually made of wood or metal, without any electronic components.

PROPOSED SYSTEM

Automated Rocking: Smart cradle systems feature automated rocking mechanisms controlled by motors or actuators.

Environmental Monitoring: Smart cradle systems incorporate sensors to monitor environmental factors such as temperature, humidity, air quality, and noise levels.

Safety Features: Smart cradles integrate advanced safety features such as motion sensors to detect when the baby is awake or moving, automatic shutdown in case of malfunction, and alerts for potential hazards.

Advanced Design and Materials: Modern smart cradles are designed with ergonomic considerations, using lightweight and durable materials.

HARDWARE AND SOFTWARE REQUIEMENTS

1.Sensors

2.LED lights

3.Wi-Fi module

4Music player

Microcontroller

1.Embedded Software

2.Arduino IDE

MODULES DESCRIPTION

Sensor Module:

Temperature Sensor: Monitors the ambient temperature inside the cradle to ensure a comfortable environment for the baby.

LED Lights:

Emit soft light for visibility and comfort during nighttime without disturbing sleep.



Wi-Fi Module:

Enables connectivity for data transmission to mobile apps or cloud platforms, facilitating remote monitoring and control

Music Player:

Plays soothing music or sounds to create a calming atmosphere for the baby.

Wi-Fi Module:

Enables connectivity for data transmission to mobile apps or cloud

Microcontroller Module:

Embedded Software:

Programs running on the microcontroller to handle sensor data, actuator control, communication protocols, and system logic.

Arduino or Raspberry Pi:

Acts as the central processing unit, managing data from sensors, controlling actuators, and implementing logic for system operation.

DESIGN AND IMPLEMENTATION

Requirements Gathering:

Define the functional requirements of the smart cradle system, including sensor types, actuator functionalities, communication protocols, user interface features, and security requirements.

System Architecture Design:

Design the overall architecture of the smart cradle system, including hardware components , communication modules, user interface and cloud integration .Determine the interaction flow between components, data flow paths, and control logic for sensor data processing and actuator control.

Hardware Selection and Integration:

Select appropriate hardware components based on the system requirements and compatibility with the chosen microcontroller platform .

Software Development:

Develop embedded software for the microcontroller to handle sensor data acquisition, actuator control, communication protocols and system logic.

User Interface Development:

Design and develop a user-friendly interface for caregivers, either as a mobile app (Android, iOS) or a web-based dashboard.

Security Implementation:

Implement security measures such as encryption protocols , authentication mechanisms and secure data transmission.

Testing and Validation:

Conduct unit testing, integration testing, and system testing to verify the functionality, performance, and reliability of the smart cradle system.

Deployment and Maintenance:

Deploy the smart cradle system in the intended environment (home, nursery) and ensure proper *setup, calibration, and user training.*

THANK YOU

