# PROJECT PROPOSAL

## Title:

## Digitized Child Monitoring System In Anganwadis

## 1. Major Area

Public Health and Education Technology (EdTech) – Digitizing Growth Monitoring, Attendance Tracking, and Public Engagement in ICDS

## 2. Problem Statement

How might we develop a smart, economical solution to digitize and monitor the growth measurements (height and weight) of children, track attendance without overburdening server space, and improve ICDS enrollment by attracting public engagement in Anganwadi services?  
1. Lack of an automated, economical system for monitoring and storing children’s growth data.  
2. Inefficient methods for tracking attendance, leading to incomplete or inaccurate records.  
3. Limited public awareness and engagement with Anganwadi services, impacting ICDS enrollment.  
4. Resource constraints in providing timely growth insights and attendance analytics.

## 3. Total Cost

Rs. 12,000/- (for prototype development)

## 4. Institution Code and Name

6112 – Knowledge Institute of Technology

## 5. Guide Name, Designation, Mobile No. & Email ID

Guide Name: Mr. K. Rajesh  
Designation: Assistant Professor  
Mobile No.: 9566815523  
Email ID: krece@kiot.ac.in

## 6. Students Team Details

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| --- | --- | --- | --- | --- |
| S. No. | Student Reg. No. | Name of the Student | Branch | Mobile No. |
| 1 | 611220106048 | Nithya G. | ECE | 9488743410 |
| 2 | 611220106034 | Kavya P. | ECE | 8428762979 |
| 3 | 611220106070 | Sibi S. | ECE | 9566589490 |
| 4 | 611220106039 | Krishva K. | ECE | 9360515989 |

## 7. Project Summary

This project integrates IoT-based technologies and a web application to digitize growth monitoring, optimize attendance tracking, and attract public engagement with Anganwadi services. The system ensures accurate data storage, health insights, and improved outreach, providing an economical and scalable solution for Anganwadi centers.

### Key Features:

1. Growth Monitoring System:  
 - Automated height and weight measurement integrated with BMI calculation.  
 - Data stored efficiently to avoid server overload.  
 - Personalized health recommendations for parents via a web dashboard.  
2. Attendance Tracking System:  
 - RFID and IR-based technology for accurate logging, even with shared entry/exit points.  
 - Optimized storage methods to prevent server overburdening.  
3. Public Engagement and Awareness:  
 - Notifications and campaigns to promote ICDS enrollment.  
 - Real-time updates on Anganwadi services through a mobile app.  
4. Alert and Notification System:  
 - Real-time notifications for unplanned holidays, early exits, or prolonged stays.  
 - Growth and health updates sent directly to parents.  
5. Holiday Management:  
 - Manage planned and unplanned holidays via the admin dashboard.  
 - Automated attendance suspension on holidays.

## 8. Proposed Solution with Methodology

1. Growth Monitoring System:  
 - Ultrasonic Sensor (HC-SR04): Measures height.  
 - Load Cell with HX711 Amplifier: Measures weight.  
 - Automatic BMI Calculation: Provides health recommendations stored in the database efficiently to minimize server load.  
  
2. Attendance Tracking System:  
 - RFID Readers and Tags: Unique identification for each child.  
 - IR Sensors: To detect direction (entry/exit) and manage simultaneous crossings.  
 - Microcontroller (ESP32): Processes data and communicates with the server.  
  
3. Public Engagement and Awareness System:  
 - Mobile App and Notifications: Increases visibility of Anganwadi services.  
 - ICDS Promotion: Periodic updates on services and campaigns to encourage enrollment.  
  
4. Web and Notification System:  
 - Web Dashboard: Displays growth and attendance data trends, ICDS metrics, and holiday schedules.  
 - Notifications: Integrated with SMS/WhatsApp APIs for timely alerts.

## 9. Workplan / Time Schedule Indicating Project Milestones

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| Milestone | Timeline |
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| Project Initiation and Planning | 2 Weeks |
| Sensor and Hardware Deployment | 4 Weeks |
| Connectivity Setup | 3 Weeks |
| Web and Mobile App Development | 4 Weeks |
| Data Analytics and Reporting | 3 Weeks |

## 10. Details of Financial Assistance Required

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| --- | --- | --- |
| S. No. | Details | Amount (Rs.) |
| 1 | RFID Readers and Tags | 2500 |
| 2 | IR Sensors | 1500 |
| 3 | Ultrasonic Sensor (HC-SR04) | 1000 |
| 4 | Load Cell with HX711 Amplifier | 1500 |
| 5 | Microcontroller (ESP32) | 2000 |
| 6 | Web/App Development Costs | 2000 |
| 7 | Notification System Integration | 1500 |

\*\*Total Amount (Rs.): 12,000\*\*

## 11. Expected Outcomes/Results

1. Children:  
 - Accurate growth tracking with BMI analysis.  
 - Improved attendance tracking without server overload.  
  
2. Parents:  
 - Real-time notifications and health insights.  
 - Increased awareness of Anganwadi services and ICDS enrollment.  
  
3. Anganwadi Administrators:  
 - Streamlined attendance and growth monitoring.  
 - Data-driven insights for effective outreach and decision-making.  
  
4. Scalability:  
 - Potential to expand with advanced features like facial recognition and improved analytics.