Visvesvaraya Technological University, Belagavi – 590018

PROJECT PROPOSAL
ON

BABYSPHERE 2.0: A cloud-based smart monitoring device for your loved one

Submitted in partial fulfillment of the requirements for the degree

BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE & ENGINEERING

Submitted by

Aaron Tauro	**4SO21CS002**
Abhik L Salian	**4SO21CS004**
Akhil Shetty M	**4SO21CS013**
H Karthik P Nayak	**4SO21CS058**

Under the Guidance of

Dr. Sridevi Saralaya
Professor and HOD, Department of CSE

DEPT. OF COMPUTER SCIENCE AND ENGINEERING
ST JOSEPH ENGINEERING COLLEGE
An Autonomous Institution
(Affiliated to VTU Belagavi, Recognized by AICTE, Accredited by NBA)
Vamanjoor, Mangaluru - 575028, Karnataka

2024-25

Project Title

BABYSPHERE 2.0: A cloud-based smart monitoring device for your loved one

Type of Project

Product based project (Software along with Hardware)

Background for the the project

In recent years, the rise in sudden infant death syndrome (SIDS) and other health concerns related to newborns has highlighted the need for continuous and accurate monitoring of babies. Many parents face the challenge of balancing their busy schedules while ensuring their child's safety, especially when they are not physically present. Traditional monitoring devices often lack intelligent features that can detect critical signs, such as body temperature or unsafe sleeping positions. With advancements in cloud technology and computer vision, there is an opportunity to develop smart monitoring systems that provide real-time alerts and actionable insights. The 'BABYSPHERE 2.0' project aims to address these issues by creating a cloud-based system capable of monitoring baby body temperature, room conditions, and movements using computer vision, helping parents prevent potential dangers like SIDS through timely alerts.

Objectives

The objectives of the proposed project work are:

1. To develop a cloud-based monitoring platform that collects and manages baby and room temperature data.
2. To provide real-time alerts to parents regarding abnormal temperature readings.
3. To integrate computer vision technology to detect unsafe sleeping positions and notify parents.
4. To create a user-friendly interface that allows parents to easily monitor and receive notifications.

5. To deliver actionable notifications through SMS, email, or app alerts in a timely manner.

Software / Hardware Requirements

List the Software/Hardware required for the development of the project.

Example: The software requirements are: Python IDE, Tensorflow, Keras, Android studio, Wamp web server.

Hardware requirements are: GPU to perform training.

References

[1] Li, Siyuan, Lei Ke, Martin Danelljan, Luigi Piccinelli, Mattia Segu, Luc Van Gool, and Fisher Yu. "Matching Anything by Segmenting Anything." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 18963-18973. 2024.

[2] Coşkun, Musab, Ayşegül Uçar, Özal Yildirim, and Yakup Demir. "Face recognition based on convolutional neural network." In 2017 international conference on modern electrical and energy systems (MEES), pp. 376-379. IEEE, 2017.

[3] Hu, Guosheng, Yongxin Yang, Dong Yi, Josef Kittler, William Christmas, Stan Z. Li, and Timothy Hospedales. "When face recognition meets with deep learning: an evaluation of convolutional neural networks for face recognition." In Proceedings of the IEEE international conference on computer vision Workshops, pp. 142-150. 2015.

[4] Parkhi, Omkar, Andrea Vedaldi, and Andrew Zisserman. "Deep face recognition." In BMVC 2015-Proceedings of the British Machine Vision Conference 2015. British Machine Vision Association, 2015.

[5] Levitin, Anany. "Introduction to design and analysis of algorithms", 2/E. Pearson Education India, 2008.