**TASK 1**

**Gaps Identified from Related Studies and Similar Systems**

**1-Limited Real-Time Interventions**

**Problem**: Many existing AI parenting tools fail to provide immediate solutions for real-time parenting scenarios, such as calming a crying child, managing behavioral outbursts, or addressing situational crises in the moment.

**Evidence**:

-Yu et al. (2023) emphasized that AI chatbots like **INFANBOT** can address parental anxiety in real-time but noted the need for improvement in immediate interventions​.

-Entenberg et al. (2021) demonstrated the feasibility of using AI chatbots for brief parenting interventions but acknowledged the limited scope of their effectiveness for real-time tasks​.

**2-Absence of Mental Health Monitoring for Children**

**Problem**: Current AI tools lack robust features for tracking and analyzing children's emotional well-being. Emotional recognition technologies, which could identify and monitor stress, sadness, or behavioral problems, are either missing or underdeveloped.

**Evidence**:

-Mahlous and Okkali (2022) highlighted the importance of AI-powered systems for monitoring children's mental health but noted a gap in integrating real-time emotion recognition tools​.

-Yunike et al. (2023) found that AI applications significantly improve parenting but warned of a reliance on technology without emotional monitoring capabilities​.

**3-Insufficient Communication Tools**

**Problem**: Many systems lack dedicated tools to enhance parent-child communication, which is a vital factor in supporting adolescent mental health and fostering trust between parents and children.

**Evidence**:

-Zapf et al. (2023) reported that high-quality **parent-child communication** correlates with improved adolescent mental health, such as reduced anxiety, depression, and behavioral disorders​.

-Entenberg et al. (2021) demonstrated that AI-based tools could guide parents to use praise and structured feedback but did not explore deeper parent-child communication coaching features​.

**4-Fragmented Data Collection**

**Problem**: Existing tools do not consolidate data on children’s routines, emotional states, and behavioral patterns into unified insights. This fragmentation prevents effective personalization of recommendations and interventions.

**Evidence**:

-Jabali & Ayyoub (2024) identified a need for systems that unify scheduling, behavior tracking, and emotional analysis to provide actionable insights for parents​.