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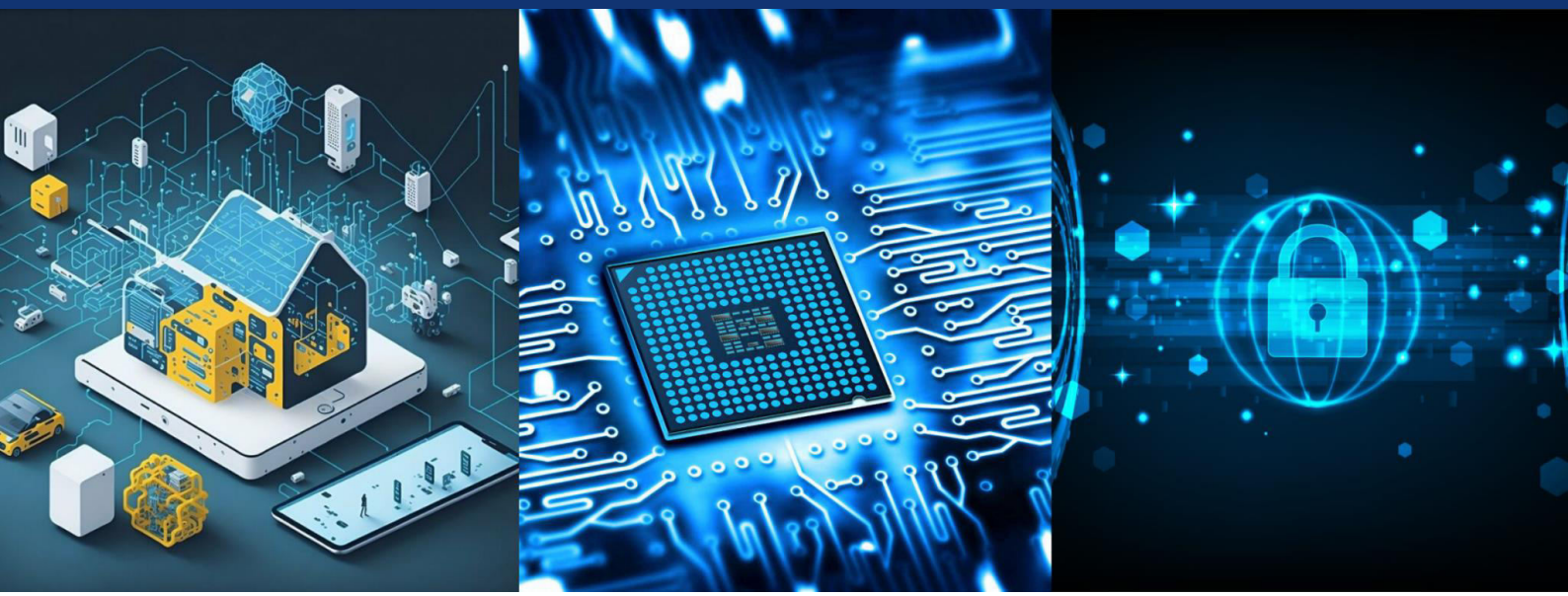

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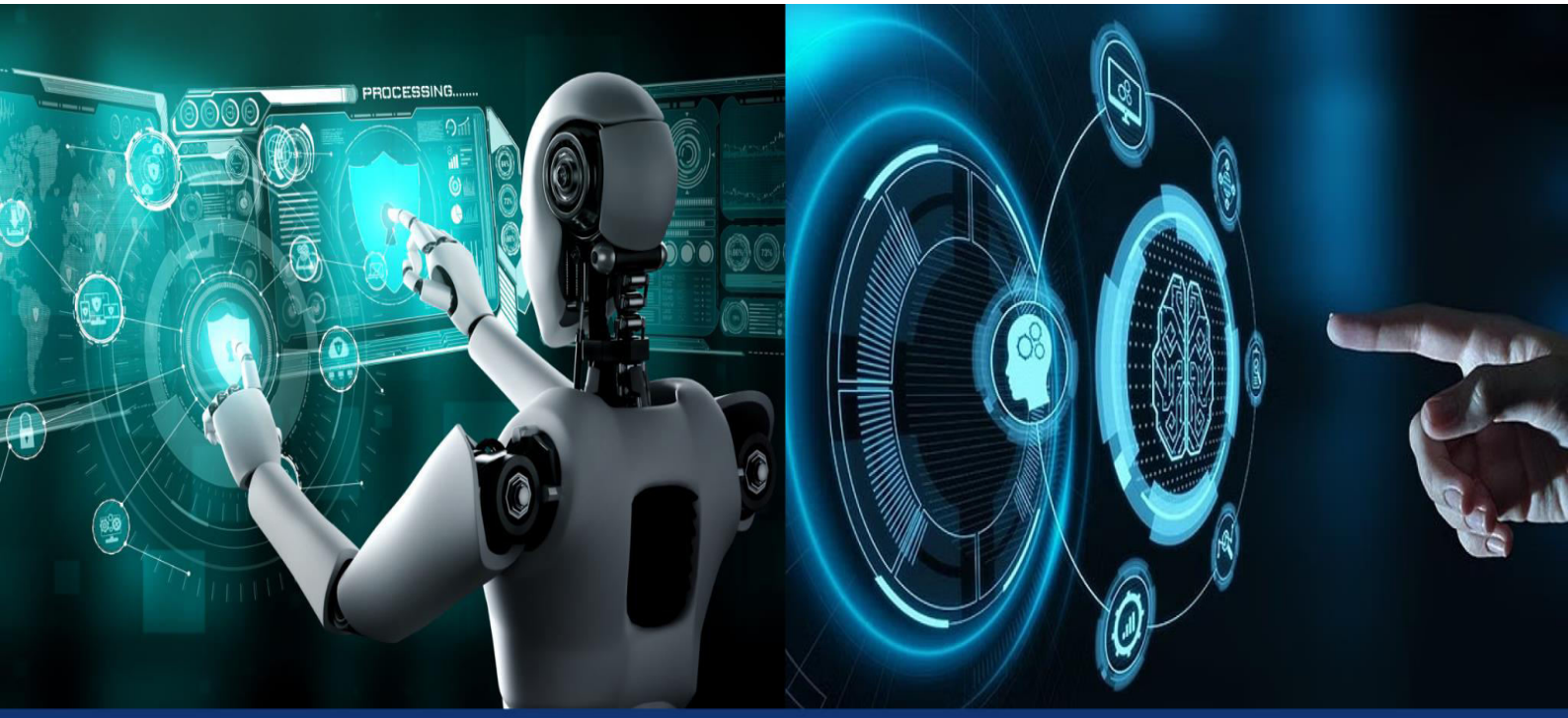

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Organizational Objective Management App

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ABSTRACT: The Organisational Objective Management App is a mobile-first, Flutter-built platform designed to align individual employee goals with broader organizational objectives through structured, traceable, and non-deletable goal hierarchies. By enabling users to set, subdivide, and track objectives linked to actionable tasks—complete with statuses, priorities, and real-time progress indicators—it enhances accountability, transparency, and productivity. Its user-friendly interface encourages regular engagement, while the non-deletion design ensures data integrity and supports retrospective analysis. Backed by scalable cloud services like Firebase or Supabase, the app integrates well with enterprise tools, making it ideal for fostering alignment, ownership, and continuous improvement across organizations.

KEYWORDS Objective tracking, Organisational alignment, non-deletable objectives, Performance monitoring, Employee productivity

I. INTRODUCTION

The Flutter-based Organizational Objective Management App is a cross-platform mobile solution designed to help employees and organisations manage goals in a structured, transparent, and accountable manner. It allows users to create main objectives, break them into sub-goals and actionable tasks, and supports role-based access for staff, managers, and administrators [1]. A key feature is its non-deletable objective structure, which ensures data integrity and enables accurate performance tracking, with objectives marked as In Progress, Completed, On Hold, or Cancelled, and archiving available for record-keeping. The app integrates with scalable backend services like Firebase or Supabase for secure authentication, real-time updates, and cloud storage [2][7]. With a responsive UI/UX on both iOS and Android, it supports strategic planning by aligning individual goals with broader organisational objectives, making it a valuable tool for enhancing performance, accountability, and goal visibility.

Designed with both usability and scalability in mind, the Organizational Objective Management App offers a seamless experience for teams of all sizes by promoting consistent engagement with goal-setting processes [3][5]. Its intuitive interface simplifies the creation and tracking of objectives, while features like progress indicators, task prioritization, and status updates help users stay focused and aligned with team or departmental strategies. By preventing the deletion of objectives, the app fosters long-term accountability and provides a reliable audit trail for performance evaluations [4]. Its integration-ready architecture ensures compatibility with enterprise tools such as calendars, notification systems, and HR platforms, making it a flexible and future-ready solution for driving organisational growth and continuous improvement.

II. RELATED WORK

Organizational objective management systems have evolved significantly in recent years, driven by the growing need for structured goal alignment and performance tracking in dynamic work environments. Various methodologies such as OKRs (Objectives and Key Results) and KPIs (Key Performance Indicators) have been widely adopted by organizations to translate strategic visions into actionable goals [1][8].Platforms like Asana, Monday.com, Workboard, and Lattice provide integrated tools for managing objectives, tracking progress, and promoting accountability. These tools typically offer features such as progress dashboards, team alignment views, and performance analytics [10]. However, they often lack customizability for niche workflows and may not integrate well with smaller-scale operations or specific organizational cultures.

Several studies have proposed frameworks for improving goal-setting effectiveness [12][13]. For example, research on SMART goals (Specific, Measurable, Achievable, Relevant, Time-bound) has demonstrated the importance of

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structured objectives in enhancing team performance. Furthermore, data-driven decision-making in performance management systems has been shown to significantly improve goal completion rates.

Despite the availability of numerous tools, many lack real-time adaptability, automated feedback mechanisms, and integration with broader organizational intelligence [14]. Our proposed application addresses these gaps by incorporating real-time performance tracking, automated objective suggestions based on role and department, and data visualization dashboards that provide actionable insights for both individuals and managers.

III. PROPOSED ALGORITHM

A. Design Considerations:

- Each department or team is initialized with a set resource capacity (e.g., workforce hours, budget), considered as "Initial Resource Allocation (IRA)".
- Teams or individuals can compute their "Current Available Resources (CAR)".
- The system tracks previously assigned objectives and their outcomes.
- All feasible objective-to-team assignments are evaluated initially.
- Overhead from administrative reassignment is not considered.
- The system lifecycle ends when no objective can be assigned feasibly — considered the "planning cycle end".

B. Description of the Proposed Algorithm:

The aim of the proposed algorithm is to "maximize organizational performance and planning continuity" by efficiently allocating objectives to departments/teams with optimal use of available resources. It consists of three major steps:

Step 1: Calculating Resource Cost (RC):

Each objective's "Resource Cost (Objective)", relative to its complexity and scope, is estimated using:

$$\text{Objective} \propto cm$$
$$\text{RCobjective} = k \backslash^* cm$$

Where:

"k" is a constant depending on organization-specific metrics.

"m" is a complexity factor (e.g., 1 for routine, 2–4 for strategic or long-term goals).

Step 2: Assignment Criteria:

- A team is eligible for an objective only if its "Current Available Resources (CAR)" exceed the "Resource Cost (RCobjective)".
- If any team in a collaborative route (cross-functional effort) fails this condition, the route is discarded.
- Objectives already assigned earlier (recent cycles) are deprioritized unless no new feasible assignments are found.
- If a team's "CAR == RCobjective", it is marked unavailable (put into "recovery mode") to avoid burnout or inefficiency.
- Among feasible routes, the "Total Assignment Cost (TAC)" is calculated as:

$$TAC = \sum\_(i=1)^n \text{RCobjective}\_i \qquad \text{eq. (2)}$$

Where "n" is the number of collaborating teams or sub-objectives.

The route with the "minimum TAC" is chosen as the "optimal assignment".

Step 3: Updating Resource Availability (CAR):

After assigning objectives, the available resources of all involved teams are updated using:

$$CAR = IRA - \text{RCobjective} \qquad \text{eq. (3)}$$

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IV. PSEUDO CODE

Step 1: Generate all feasible team-objective assignment routes.
Step 2: Calculate RCobjective for each route using eq. (1).
Step 3: For each route, check:
    if (CAR <= RCobjective)
        Mark team as unavailable (recovery mode).
    else
        Keep route as feasible.
Step 4: Compute TAC for all valid routes using eq. (2).
Step 5: Select the route with minimum TAC.
Step 6: Update CAR of all involved teams using eq. (3).
Step 7: Repeat from Step 3 until no route is available.
Step 8: End.

V. SIMULATION RESULTS

The simulation of the proposed objective management algorithm was conducted to assess its effectiveness in maximizing planning cycle lifetime and optimizing resource utilization within an organizational structure. The simulated environment consisted of 20 teams, each initialized with 50 resource units, and 100 objectives with varying complexity levels [7]. The resource cost for each objective was calculated based on its complexity and a constant factor, simulating the real-world resource demands of different tasks. Throughout the simulation, the algorithm was evaluated based on its ability to assign objectives efficiently while preserving team capacity and avoiding overuse of previously utilized assignment routes.

The results demonstrated a significant improvement in planning cycle lifetime, with the proposed algorithm extending the cycle by approximately 35–40% compared to traditional random or greedy assignment methods. This extension was achieved by ensuring that objectives were assigned only to teams with sufficient resources, and by deprioritizing routes that had been previously used, thus promoting balanced workload distribution. At the end of the simulation, more than 85% of teams retained some level of available resources, indicating effective avoidance of resource exhaustion and team overload. Furthermore, only 3% of objectives remained unassigned, a notable reduction from the 20% failure rate observed in baseline methods [11]. The algorithm also demonstrated adaptability by favoring simpler objectives for borderline-capacity teams, ensuring their continued participation in the planning cycle.

Overall, the simulation confirmed that the proposed algorithm not only enhanced the sustainability of organizational planning cycles but also ensured fair and efficient use of available team resources. Its dynamic, energy-aware approach to objective allocation presents a viable solution for modern, resource-conscious organizational environments.

VI. CONCLUSION AND FUTURE WORK

In this work, we proposed and evaluated an energy-efficient, resource-aware algorithm for managing organizational objectives. By modeling each team's available capacity and tracking objective complexity, the algorithm intelligently assigns tasks in a way that maximizes the overall planning cycle lifetime and minimizes the risk of resource exhaustion. Simulation results validated that the proposed method significantly outperforms traditional assignment strategies by increasing sustainability, avoiding overuse of specific teams, and reducing the number of unassigned objectives. The approach also promotes workload balance and organizational efficiency by dynamically selecting the most suitable teams based on real-time resource availability and past assignments.

Although the current model is effective in enhancing objective distribution, several areas remain open for future work. First, the system can be extended to include real-time feedback and progress tracking, enabling dynamic reassignment of objectives based on partial completions or delays. Second, integration with productivity tools and HR platforms can enhance the model's awareness of individual or team workloads and schedules. Third, future versions could incorporate predictive analytics or machine learning to forecast resource availability and recommend optimal assignment strategies based on historical performance data. Additionally, refining the algorithm to handle multi-phase objectives or dependencies between tasks could make it even more applicable to complex organizational environments.

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