Tempocast

Building Smarter, Safer Future with Technology enabling automation.

MINIONS

TemporalCast

The construction industry faces critical challenges in planning, resource allocation, budgeting and safety measures due to reliance on outdated methods. These inefficiencies result in frequent project delays, cost overruns and safety risks.

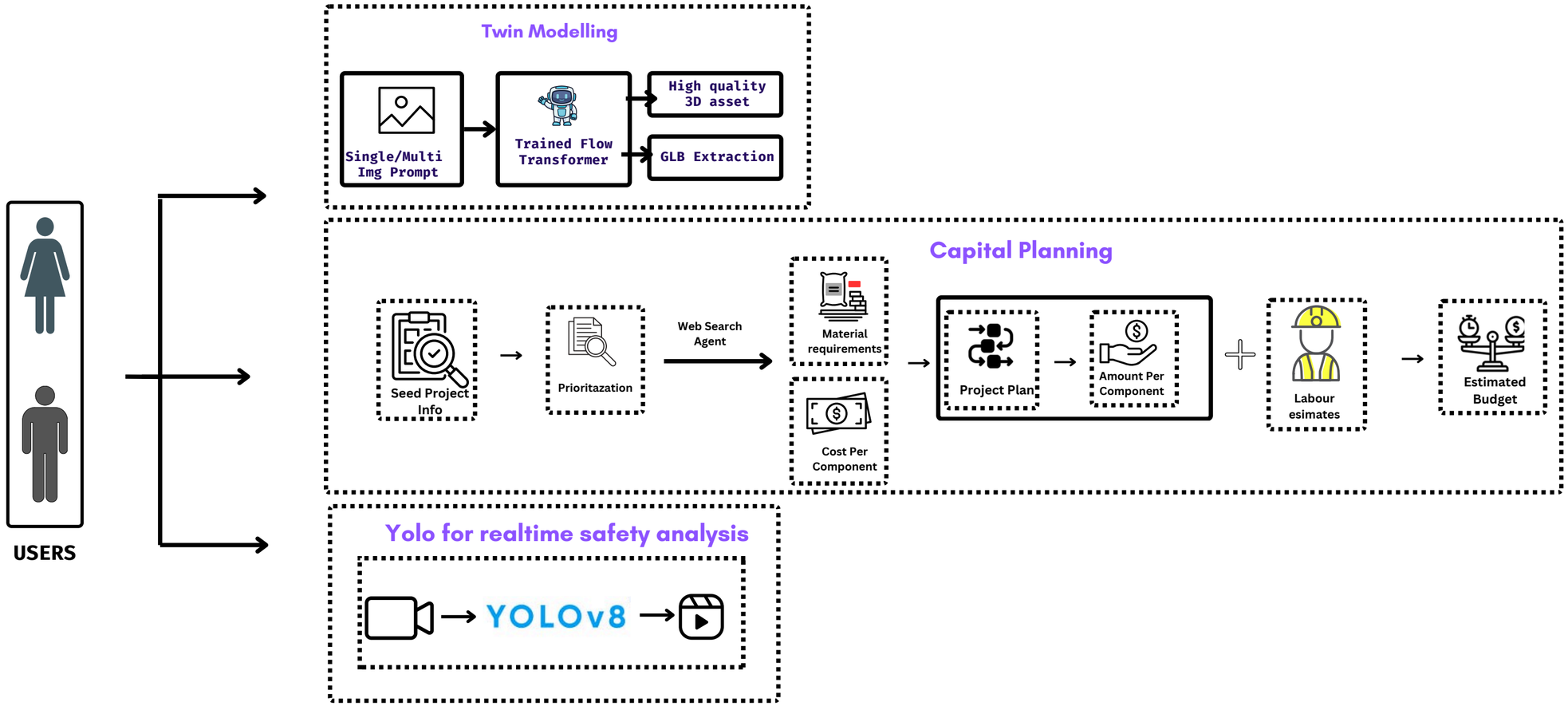
How It Addresses the Problem:

1. **Digital Twin for Construction :** Visualize construction projects in 3D to anticipate challenges and minimize rework.
2. **What-If Analysis :** Analyze various scenarios to identify risks and optimize outcomes along with interactive model.
3. **Project planning :** Automate resource allocation and task sequencing for efficient project execution.
4. **Budget estimation** : Predict and adjust costs dynamically to avoid overruns and optimize spending.
5. **Yolo model for realtime safety analysis :** Monitor safety compliance and detect hazards instantly to prevent accidents.

USP:

- **Daily Cost Prediction:** Predict daily costs based on historical data to improve decision-making
- **Temporal Data Forecasting:** Build a robust temporal data forecasting system using advanced ML models like Temporal Fusion Transformers (TFT).
- **Dynamic Categorical and Numerical Inputs:** Includes rolling averages, lagged values, and real-time contextual features like weather and marketing spend.
- **3D-Digital Twin**: Visualize construction projects before execution to minimize unforeseen challenges and costly rework.

OUR SOLUTION



IMPACT AND BENEFITS

Outdated planning methods P1

Cost overruns & delays P2

Resource allocation inefficiencies P3

P4 **On-site safety risks**

Tempocast

S1 **Digital Twin for Construction**

S2 **Daily Cost Prediction and Temporal Forecasting**

S3 **Automated Project Planning and resource allocation**

S4 **Real-Time Safety Analysis with YOLO Model**

TECH STACK

Frontend

Streamlit

Backend

Flask

Python

ML

Pytorch

HuggingFace

Langchain

3d Modelling

Monitoring

IMPACT AND BENEFITS

Benefits:

Economic Benefits:

- Cost Reduction, Increased Productivity, and Lower Insurance Costs

Operational Benefits:

- Predictive Insights, Enhanced Safety, and Improved Resource Management

Increased Productivity:

- Streamlined workflows and automated monitoring improve efficiency.

Impact:

Industry Transformation:

- Accelerates the adoption of AI in the construction industry, shifting it from manual to digital processes.

Economic Impact:

- Higher ROI for construction firms due to fewer delays and better project management.
- Job creation in AI technology development, integration, and training for construction professionals.

MINIONS

FEASIBILITY AND VIABILITY

Market Feasibility:

- **Demand:** Growing global construction market valued at over $12 trillion (2025 estimate) with increasing digitization.
- **Trends:** Adoption of Building Information Modeling (BIM) and AI-driven construction tools is accelerating.

Technical Feasibility:

- **Technology:** Existing AI models like Temporal Fusion Transformers (TFT) are well-suited for forecasting.
- **Implementation Tools:** Integration of YOLO models for safety monitoring and use of cloud platforms for real-time data processing.

Team: Minions

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