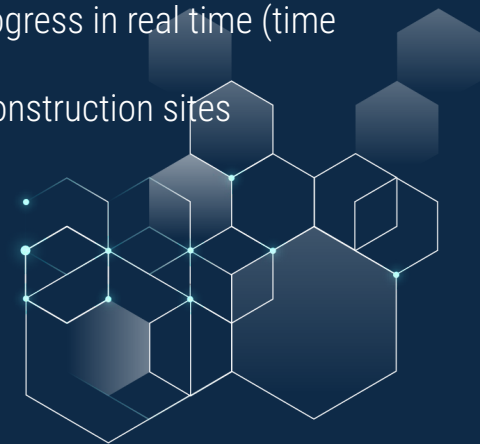




MAIN TARGET

Build and develop AI Computer Vision application features integrate the monitoring and supervision of construction projects.

- Human management
 - Vehicle management
 - Materials management
 - Warning
 - Ensure 5S compliance at construction site
 - Monitor construction progress in real time (time lapse recording)
 - Can be deployed at all construction sites
- 

IMPLEMENTATION PROBLEMS



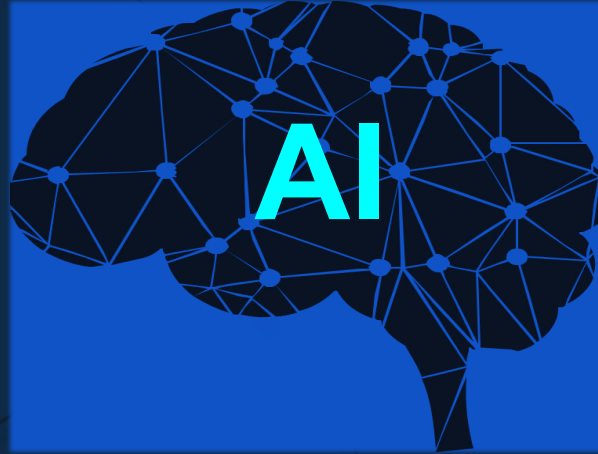
Face Identification

Identify the faces of people registered in the project and strangers recorded on the camera.



Warning people entering dangerous areas

detect whether the person is in a dangerous area or not



Personal Protective Equipment

protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection



Identify license plates of vehicles entering and leaving the construction site

Identify license plates of vehicles entering and leaving the construction site



Identify construction site vehicles

Identify vehicles appearing at the construction site, vehicle type, entry/exit status

PREMIUM ALTERNATIVE RESOURCES

STT

Use-Case

Use-Case
Description

Technology
Type

1

Identify faces of workers in construction sites and warn strangers

The registered human face recognition model belongs to the building and the stranger is recorded in the camera. If it is a stranger, give a warning to the management department.

Computer Vision

2

Count the number of workers entering and leaving the construction site

The model counts the number of workers entering and leaving the construction site from surveillance cameras, helping to manage the number of workers.

Computer Vision

3

Warning people entering dangerous areas and materials areas

The model identifies people and detects whether that person is in a dangerous area or not and gives warnings to management.

Computer Vision

4

Recognize license plate numbers

Use AI to recognize license plates of vehicles entering and exiting construction sites and extract license plate information for vehicle management.

Computer Vision

5

Identify vehicles in the construction site

Using AI-Yolo Model and deepsort to identify vehicles appearing at the construction site to manage the number, type of vehicle, entry/exit status and time of appearance at the construction site.

Computer Vision

6

Count the number of vehicles entering and leaving the construction site

Using AI-Yolo Model and deepsort to identify vehicles appearing at the construction site to manage the number, type of vehicle, entry/exit status and time of appearance at the construction site.

Computer Vision

7

**Check whether workers comply with 5S or not?
(Wear protective gear, hat, shoes, shirt,...)**

Using AI-YOLO Model to check whether workers-engineers comply with 5S regulations at the construction site, are they wearing protective equipment (shirts, hats, shoes) according to regulations?

Computer Vision

Implementation and deployment phase

STT	Main mission	Describe	Time Estimation	Pricing Estimate
1	Data Collection	- Gather diverse datasets containing images or videos of material mining trucks and logistics carrying various materials.	2 weeks	4000\$
2	Data Preprocessing	- Clean and augment the data to enhance the model's robustness. - Annotate the dataset with accurate labels for the 20 different materials.	3 weeks	6000\$
3	Model Selection	- Choose a suitable deep learning architecture for image classification, considering the complexity of the task.	2 weeks	4000\$
4	Model Training	- Train the selected model on the preprocessed dataset, optimizing hyperparameters for performance.	6 weeks	10000\$
5	Evaluation	- Assess the model's accuracy, precision, recall, and F1 score using a validation dataset. - Fine-tune the model if necessary.	2 weeks	4000\$
6	Integration	- Connect the trained YOLO v8 model to the FastAPI backend, establishing a smooth communication channel. - Implement mechanisms for handling concurrent requests and ensuring low-latency responses. - Verify the integration's robustness and correctness under various scenarios.	3 weeks	5000\$

Note: Actual costs and time may vary depending on project scope, location, specific labor costs and complexity of tasks, as well as team expertise.

Implementation and deployment phase

STT	Main mission	Describe	Time Estimate	Pricing Estimate
7	User Interface Development	- Create a user-friendly interface to interact with the AI system, allowing users to input images or videos for classification.	4 weeks	6000\$
8	Testing	<ul style="list-style-type: none">- Conduct extensive testing, including unit tests, integration tests, and end-to-end tests.- Identify and address any issues, bugs, or performance bottlenecks.- Fine-tune parameters or adjust components if needed based on testing outcomes.	3 weeks	3000\$
9	Deployment	<ul style="list-style-type: none">- Deploy the complete system on a scalable infrastructure, considering factors like load balancing and redundancy.- Configure monitoring tools to track system health and performance.- Conduct a final round of testing in the production environment.	2 weeks	2000\$
10	Optimization and Feedback	<ul style="list-style-type: none">- Continuously optimize the system based on user feedback and real-world performance.- Optimize the model for real-time inference by considering hardware acceleration (e.g., GPU usage).	ongoing	2000\$
11	Documentation	<ul style="list-style-type: none">- Create detailed documentation covering model training, API endpoints, input/output formats, and UI functionality.- Include instructions for system deployment, configuration, and troubleshooting.- Ensure documentation is comprehensive for both developers and end-users.	2 weeks	2000\$
12	Maintenance and Updates	<ul style="list-style-type: none">- Regularly update the model with new data and materials to improve its accuracy over time.- Address any issues or bugs reported by users.	ongoing	2000\$

Note: Actual costs and time may vary depending on project scope, location, specific labor costs and complexity of tasks, as well as team expertise.