Data Intrapreneurship Final Presentation

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Value Proposition

Making property management easier through computer vision

Need

- Large portfolio’s
- Lacking information
- Easier negotiations
- Optimize long-term maintenance plans

Business Model

- Other property managers
- Microservice and Endpoint

Key Partners, Resources and Key Activities

Key Partners

- Imaging providers
- Industry stakeholders
- Regulatory bodies for compliance alignment

Key Resources

- Proprietary AI models for building element detection.
- Computing power
- Partnerships with imaging providers.
- Skilled team

Key Activities

- Continuous improvement of AI models
- Client training and onboarding
- Generating actionable insights

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Cost Structure

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- AI development and maintenance
- Cloud infrastructure for hosting, processing, and storage
- Marketing and sales outreach for B2B relationships
- Customer support for onboarding and ongoing assistance

Cost Structure	
Salary 20 € × 16 hours/week × 5 people × 8 weeks	€12800
Google Colab 50 € × 8 weeks	€400
Cloud Infrastructure 50 € × 8 weeks	€400
Marketing & Customer support	€800
Total cost	€14500

Revenue Streams

- Per-use fees for one-time property assessments
- Subscriptions for ongoing monitoring and updates
- Licensing APIs for seamless integration with client platforms
- Custom analytics reports for specialized needs like urban planning

Data dataset

- 727 Images from Turkey

Object instances:

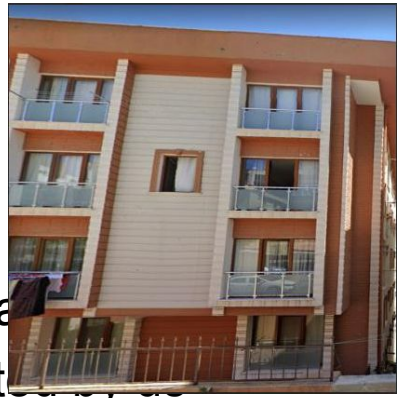
Train dataset

- ~1,000 doors
- ~8,000 windows

Sezen, G., Cakir, M., Atik, M. E., & Duran, Z. (2022)

“View street” option of Google Maps

Uniform in terms distance



Test dataset

- 100 Images from Kleurrijk Wonen

Object instances:

- 36 doors
- 636 windows

Eye-level perspective, aerial perspective

Non-uniform in terms of distance and angles

Methodology

Pre-trained YOLO v8 large model trained in multi-stage

Data augmentation flags set to default

Stage 1

Hyperparameters:

- epochs=10
- batch=32
- imgsz=640
- freeze=10
- patience=0

Stage 2

Hyperparameters:

- epochs=40 (best at 14 epochs)
- batch=32
- imgsz=640
- freeze=0
- patience=10

Results

Class	Instances	Accuracy	Precision
door	36	42%	0.337
window	636	63%	0.611

Future steps

1. Deal with the class imbalance
2. Train on KW data
3. Improve methodology


window 0.6
window 0.9
window 0.9
window 0.4
window 0.3
window 0.6
door 0.6
window 0.4
window 0.3

DEMO

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