

# MineGuard

A drone kit for remote mine detection with an accuracy of 90%, which is 3 times cheaper than analogues



# PROBLEM

The manual process of searching for landmines is slow, dangerous and expensive

It will take Ukraine more than 750 years to demine all the affected areas using traditional methods

The estimated cost of demining Ukraine is about \$37 billion

The estimated cost of demining the top 10 most mined countries is over \$282 billion

# SOLUTION

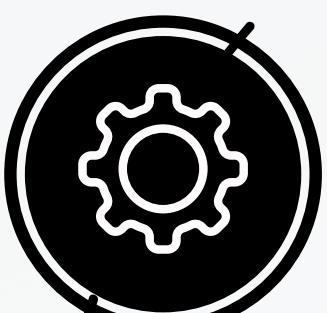
## Drones

MineGuard KIT is used in conjunction with any drone

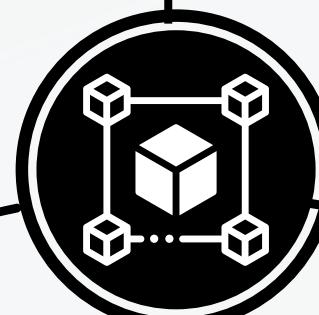


## Three sensors

RGB camera, thermal imager and metal detector

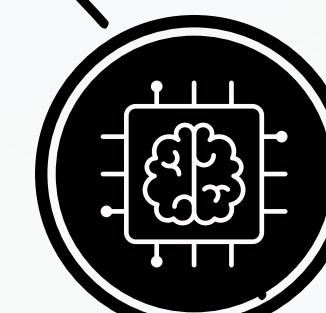


## MineGuard KIT



## Neural networks

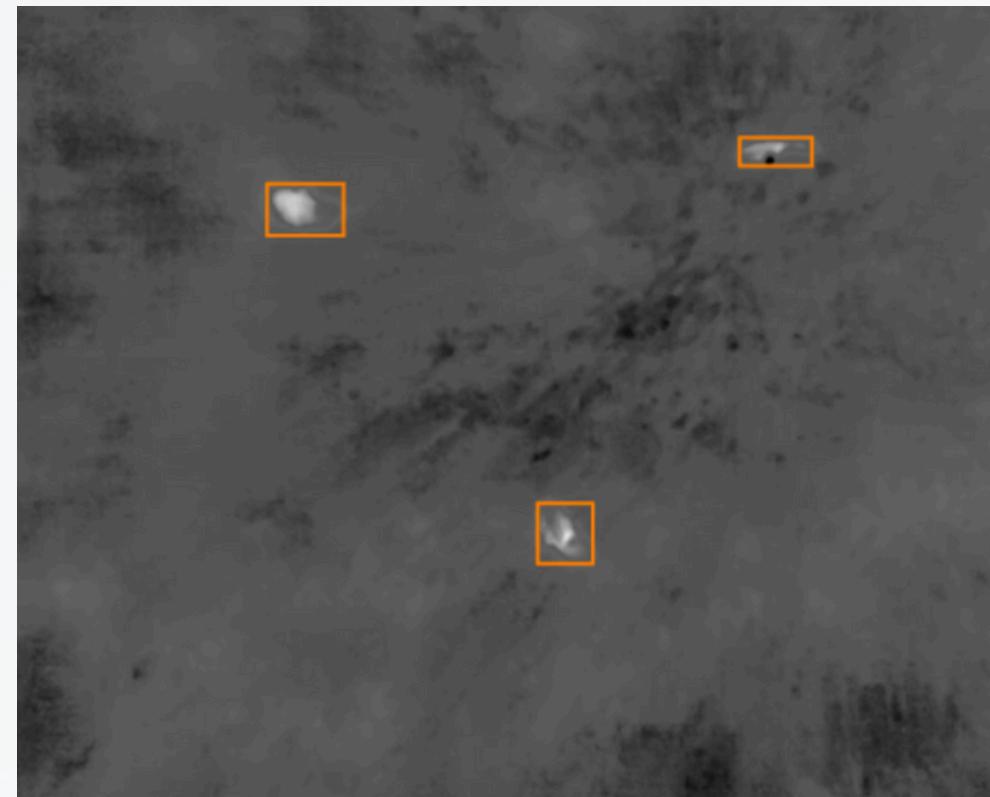
Computer vision technologies and neural networks for mine detection



# TECHNICAL IMPLEMENTATION



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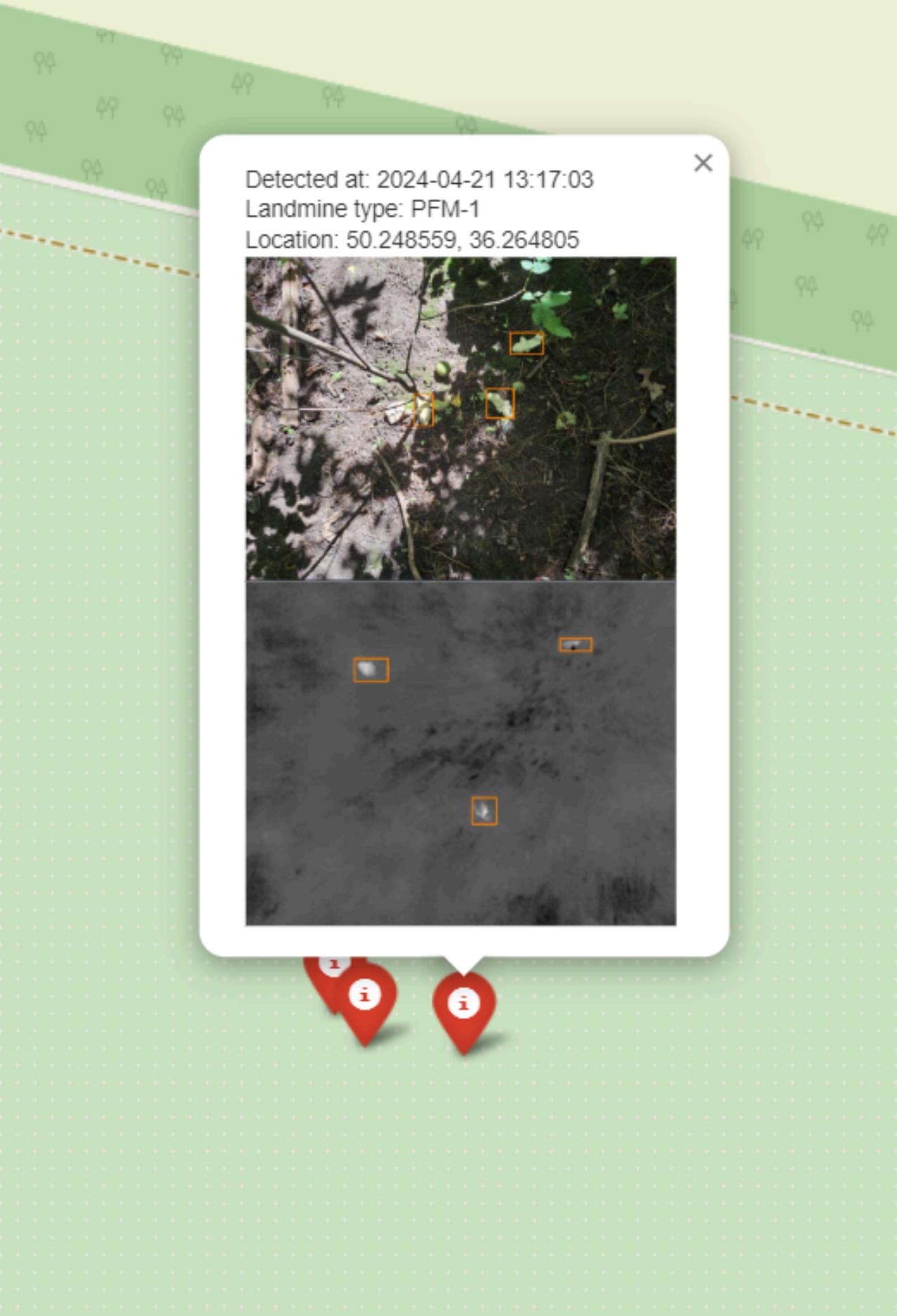
RGB camera + YOLOv8

Thermal imager + YOLOv8

Neural network processing of metal  
detector signals

\* own unique datasets based on digital twins are used to train neural networks

# ALGORITHM

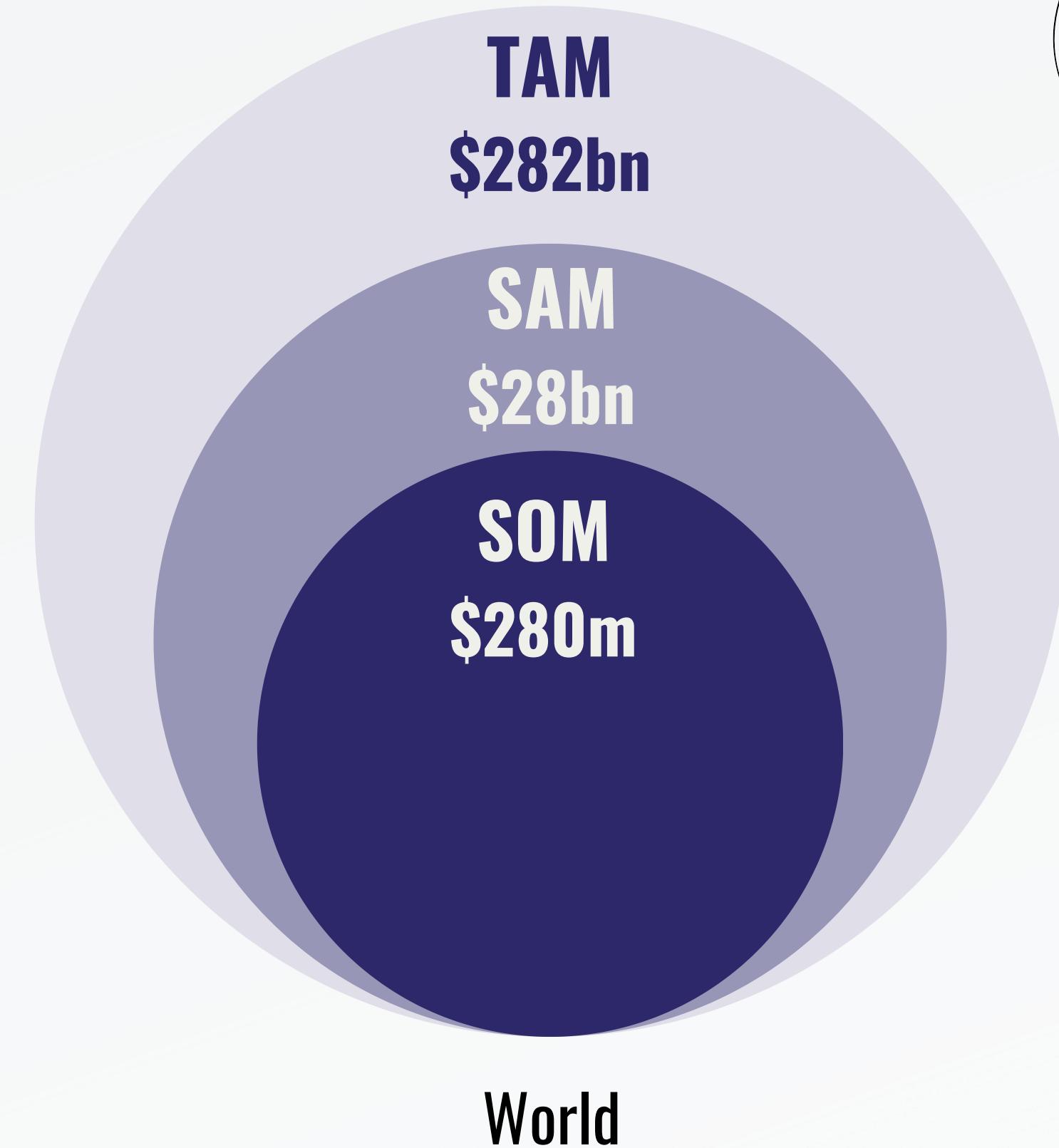
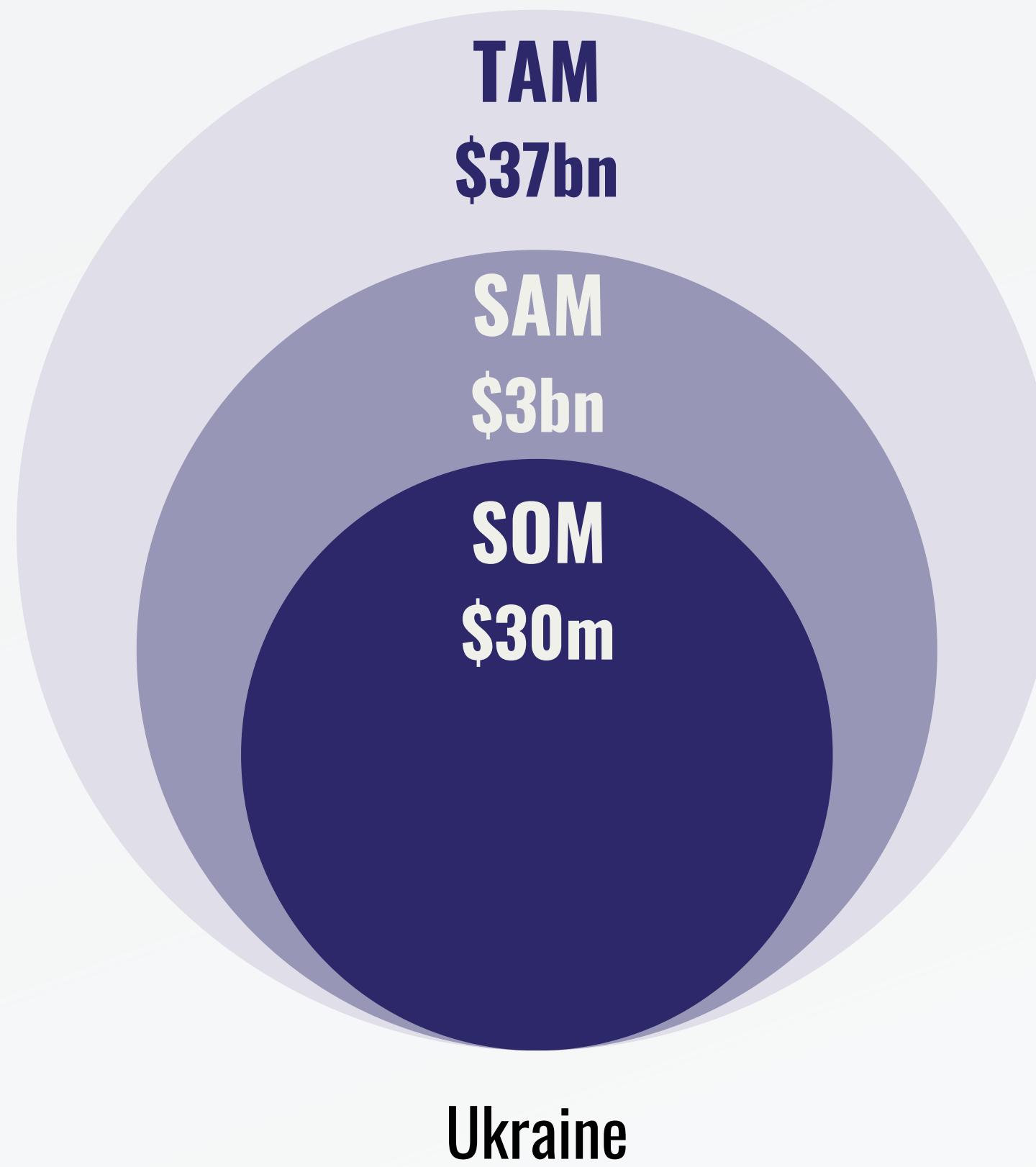


- 1. Data processing:** 3 independent sensors scan the area.
- 2. Visualization via map:**
  - Yellow marker: 1 sensor suspects a mine.
  - Red marker: 2+ sensors have detected a mine.
- 3. Classification of mine type**

# COMPETITORS

	MineGuard	Skyfront	Delair	ST1	MagDrone R3	Draganfly	ArroTech
Accuracy	90%	90%	90%	90%	30%	30%	30%
Price	\$10K	\$47K	\$50K	\$30K	\$17K	\$100K	\$150K

# MARKET



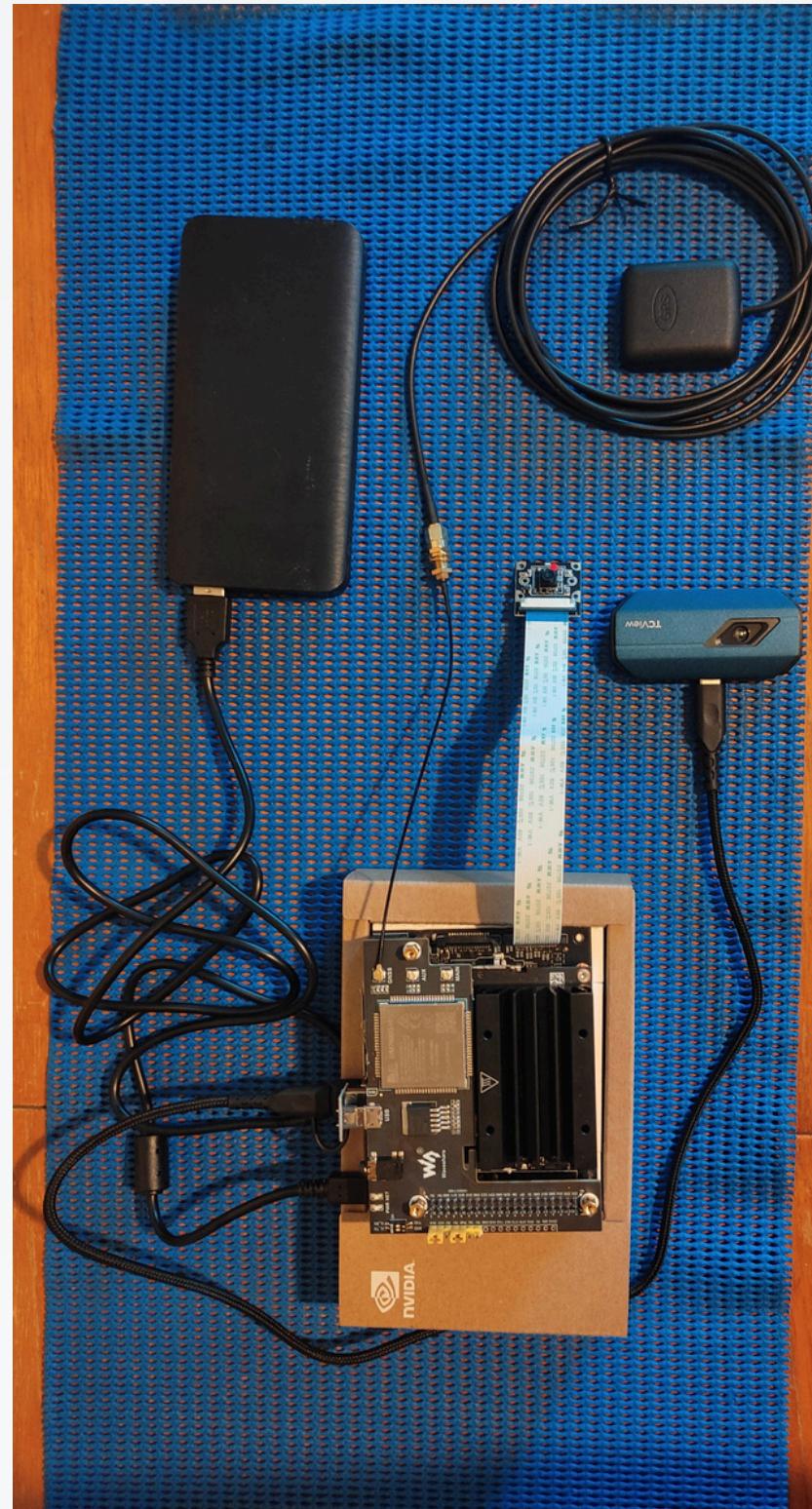
# BUSINESS MODEL

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
<ul style="list-style-type: none"> <li>Mine action operators (state, commercial and grant-funded). Cooperate in the testing and deployment of the MineGuard KIT.</li> <li>Equipment suppliers: Online radio component stores.</li> </ul>	<ul style="list-style-type: none"> <li>Continuous improvement of AI algorithms and hardware.</li> <li>Production and assembly of the MineGuard KIT.</li> <li>Searching for potential customers and popularizing the benefits of the kit.</li> </ul>	<ul style="list-style-type: none"> <li>Provides &lt;95% accuracy in mine detection and is 4 times cheaper than analogs due to the use of artificial intelligence and simpler sensors</li> <li>Option to purchase a MineGuard KIT for installation on your own drone, or purchase a MineGuard drone with all the necessary settings</li> </ul>	<ul style="list-style-type: none"> <li>Technical support and maintenance: Provide services in setting up the drone, as well as training in the use of KIT.</li> </ul>	<ul style="list-style-type: none"> <li>Primary: state mine action operators</li> <li>Secondary: commercial mine action operators and grant-funded mine action operators.</li> </ul>
	<p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>Public procurement on Prozoro and charitable organizations.</li> <li>Cooperation with mine action operators and equipment suppliers.</li> <li>Website, online and in-person product demonstrations.</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>Public procurement on Prozoro and charitable organizations.</li> <li>Cooperation with mine action operators and equipment suppliers.</li> <li>Website, online and in-person product demonstrations.</li> </ul>	
<b>Cost Structure</b>		<b>Revenue Streams</b>		
<ul style="list-style-type: none"> <li>Development and improvement of KIT technology.</li> <li>Salary of the staff</li> <li>Production and assembly of MineGuard KIT.</li> <li>Advertising and customer search costs.</li> <li>Training, maintenance and technical assistance.</li> </ul>		<ul style="list-style-type: none"> <li>Sales of MineGuard KIT to mine action operators (government, commercial and grant-funded)</li> </ul>		

# ACHIEVEMENTS



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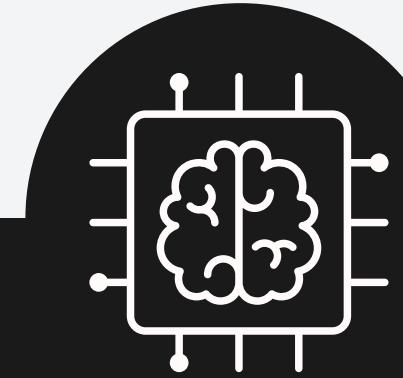


MineGuard KIT



Recording a dataset

# DEVELOPMENT STRATEGY



Improve the performance of  
neural networks

STRATEGY N°1



Purchase of a Reactive Drone  
Agric RDE410 drone to create  
an MVP product

STRATEGY N°2



Conclusion of contracts for  
test operation and further  
promotion of the product

STRATEGY N°3

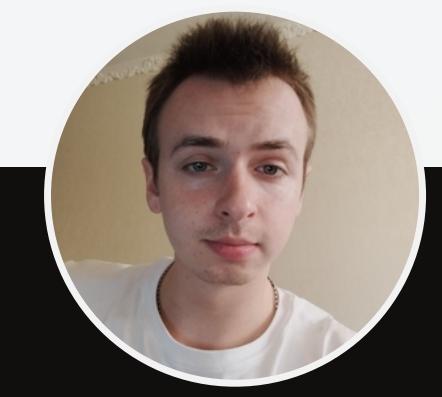
# TEAM



**Mark  
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CEO  
Python Developer



**Illya  
Hovorukha**  
CTO  
Engineer



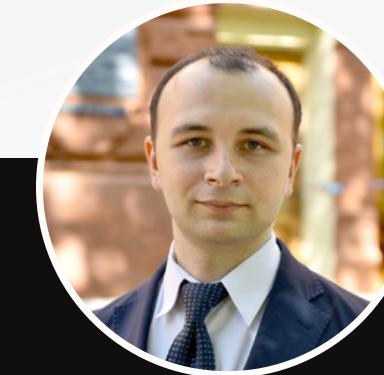
**Mykhailo  
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Lazariev**  
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**Pavlo  
Palamarchuk**  
Engineer



**Oleksii  
Vodka**  
Mentor



**Volodymyr  
Mietielov**  
Mentor

**THANK YOU FOR  
YOUR ATTENTION**