PedXing

Prioritizing Pedestrians at Every Crossing

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The Motivation

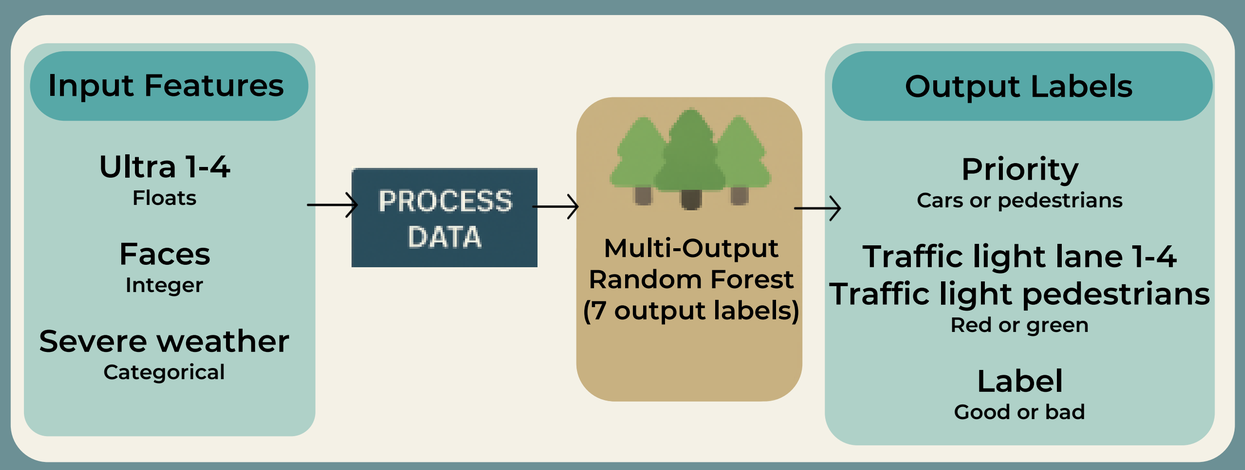
Traditional traffic systems prioritize vehicle flow, often neglecting pedestrian safety especially in low traffic or harsh weather conditions.
This imbalance leads to safety risks and inefficient intersections.
PedXing addresses this gap by using real-time sensor input and intelligent decision-making to prioritize pedestrians when it matters most.

ML Model

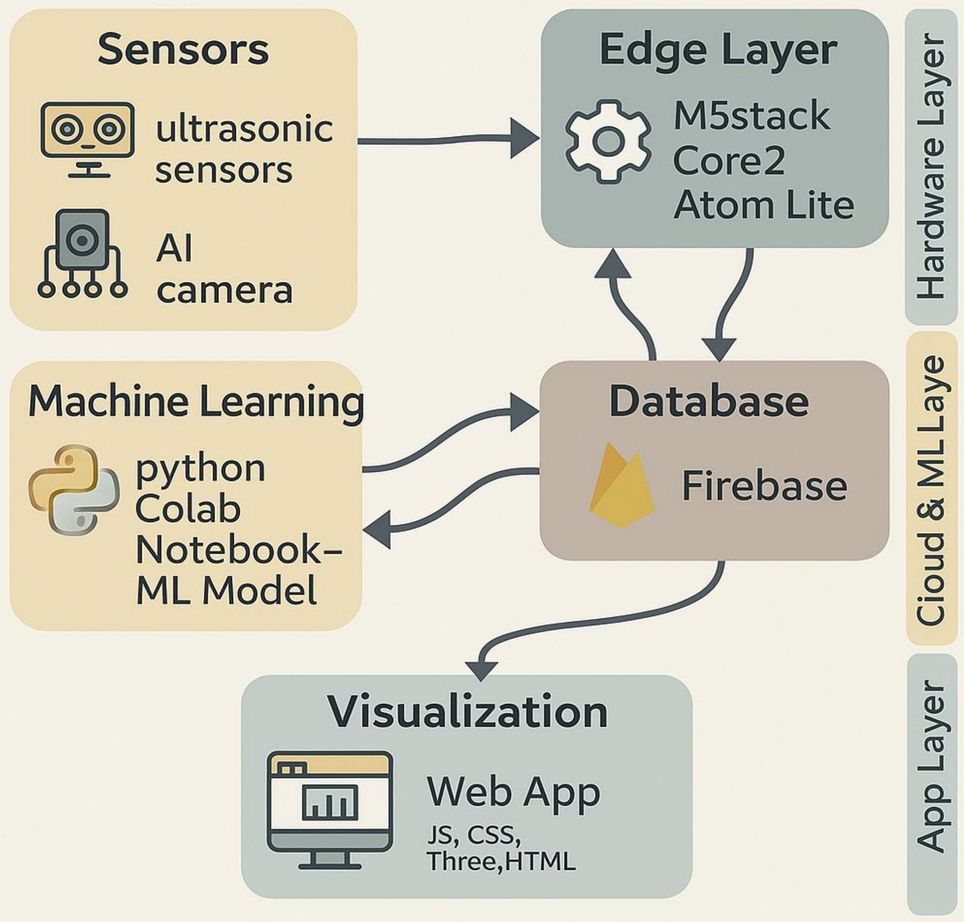
PedXing is powered by a **Random Forest model** trained on over **1M synthetic intersection scenarios.**

Inputs include:
- Vehicle detection
- Pedestrian count
- Time & day
- Weather conditions

The model outputs:
- Lane priorities
- Five traffic light states
- Scenario quality (good / bad)

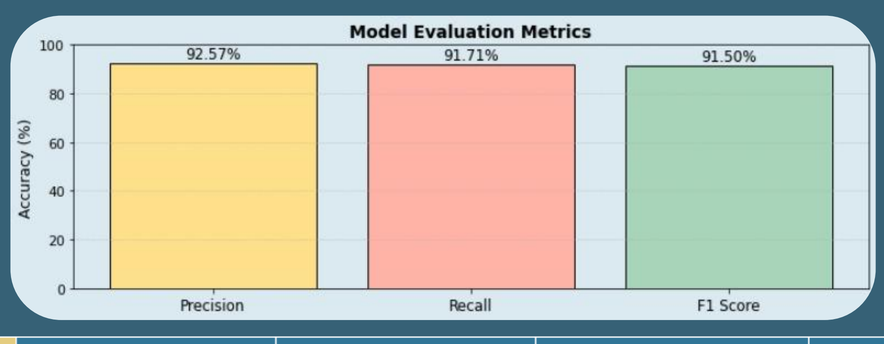


System Architecture



Results

The model performs consistently and effectively, with most output variables above 90% accuracy and others retaining stable results. This demonstrates its durability in various traffic conditions.



Metrics	Priority Accuracy	Lane 1-4 Accuracy	Pedestrian Light Accuracy	Label Accuracy
Description	Predicting whether to prioritize vehicles or pedestrians	Predicting the correct state of traffic_light_lane-1-4	Predicting the correct state of traffic_light_pedestrian	Classifying scenarios as “good” or “bad”
Value	85%	93–92%	85%	83%

Web App

3D Simulation

An interactive display that visualizes traffic lights, vehicle movement, and pedestrian activity, all synchronized with live sensor data.

Live Dashboard

Real-time display of traffic, pedestrian activity, weather, and sensor status, with predictive charts for vehicle and pedestrian flow.

Explore App

Watch demo