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Complete List of Detectable Items & Attributes

Application: DSDevices Edge AI (com.dsdevices.dsdai)

Pipeline Models: Object Tracking + Dedicated Gender Classifier + Dedicated Age Estimator

Execution Mode: 100% Offline Edge Inferences

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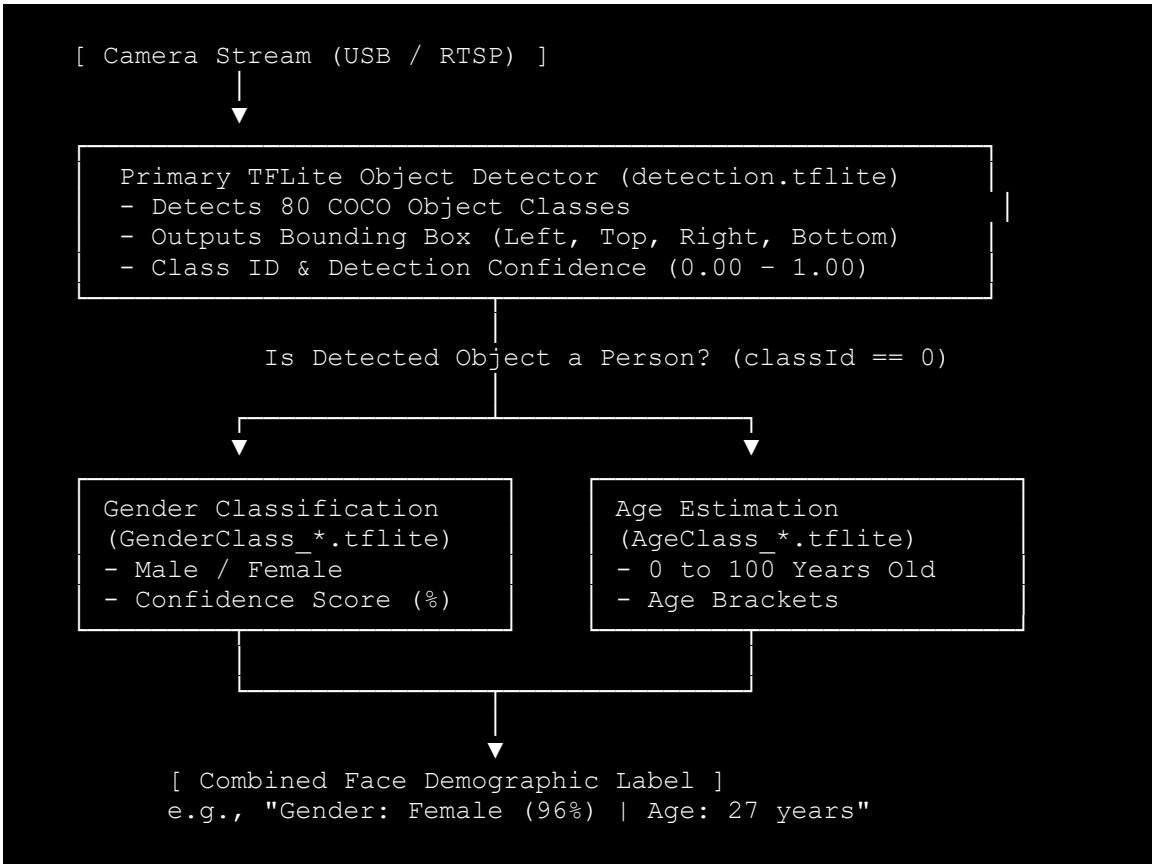
1. Overview of Detection Pipeline & Attributes

The **DSDevices Edge AI** application utilizes a cascading multi-model computer vision pipeline:



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2. Face Demographic Attributes (Persons)

When `person` (`classId = 0`) is detected, the pipeline automatically crops the head/face region and executes secondary AI models to infer demographic attributes in real-time.

A. Gender Attribute

- **Possible Values**:
  - `Female`
  - `Male`
- **Output Format**: `Gender: <Male|Female> (<Confidence>%)`
- **Example**: `Gender: Female (94%)` or `Gender: Male (98%)`

B. Age Attribute

- **Estimation Modes**:

  1. **Continuous Regression**: Estimated age from 0 to 100 years old (e.g. `Age: 28 years`).
  2. **Age Bracket Classification**: Grouped into 9 age categories:
     - `0-10`
     - `11-20`
     - `21-30`
     - `31-40`
     - `41-50`
     - `51-60`
     - `61-70`
     - `71-80`
     - `80+`
- **Output Format**: `Age: <X> years` or `Age: <Bracket>`
- **Example**: `Age: 32 years` or `Age: 21-30`

C. Combined Demographic Label

When both Gender and Age models run on a detected person, the custom label formats as:

- `"Gender: Male (96%) | Age: 32 years"`
- `"Gender: Female (91%) | Age: 24 years"`

3. Complete List of 80 Detectable Object Classes

The primary object detection model recognizes **80 distinct object classes** from the COCO (Common Objects in Context) dataset:

Category 1: People & Vehicles (Classes 0–8)

Class ID	Class Name	Description & Secondary Pipeline
0	`person`	Human body/face. **Triggers Age & Gender classification pipeline.**
1	`bicycle`	Bicycles and push-bikes.
2	`car`	Passenger cars, sedans, SUVs, taxis.
3	`motorcycle`	Motorcycles, mopeds, scooters.
4	`airplane`	Commercial and private aircraft.
5	`bus`	Transit buses, coaches, mini-buses.
6	`train`	Trains, subways, locomotives.
7	`truck`	Cargo trucks, pickup trucks, delivery vans.
8	`boat`	Watercraft, boats, ships, speedboats.

Category 2: Outdoor & Traffic Objects (Classes 9–13)

Class ID	Class Name	Description
9	`traffic light`	Traffic signals and lights.
10	`fire hydrant`	Street fire hydrants.
11	`stop sign`	Octagonal stop traffic signs.
12	`parking meter`	On-street parking meters.
13	`bench`	Park benches and public seating.

Category 3: Animals (Classes 14–23)

Class ID	Class Name	Description
14	`bird`	Birds and fowl.
15	`cat`	Domestic cats.
16	`dog`	Domestic dogs.
17	`horse`	Horses.
18	`sheep`	Sheep.
19	`cow`	Cattle / cows.
20	`elephant`	Elephants.
21	`bear`	Bears.
22	`zebra`	Zebras.
23	`giraffe`	Giraffes.

Category 4: Personal Accessories & Luggage (Classes 24–28)

Class ID	Class Name	Description
24	`backpack`	Rucksacks and backpacks.
25	`umbrella`	Handheld umbrellas.
26	`handbag`	Purses, handbags, shoulder bags.
27	`tie`	Neckties and bowties.
28	`suitcase`	Travel suitcases and luggage.

Category 5: Sports & Outdoor Equipment (Classes 29–38)

Class ID	Class Name	Description
29	`frisbee`	Frisbees and flying discs.
30	`skis`	Snow skis.
31	`snowboard`	Snowboards.
32	`sports ball`	Soccer balls, basketballs, tennis balls, etc.
33	`kite`	Flying kites.
34	`baseball bat`	Baseball and softball bats.
35	`baseball glove`	Baseball mitts/gloves.
36	`skateboard`	Skateboards.
37	`surfboard`	Surfboards.
38	`tennis racket`	Tennis and badminton rackets.

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Category 6: Kitchenware & Food Items (Classes 39–55)

Class ID	Class Name	Description
39	`bottle`	Beverage bottles, water bottles, glass bottles.
40	`wine glass`	Wine glasses and stemware.
41	`cup`	Coffee cups, mugs, drinking glasses.
42	`fork`	Eating forks.
43	`knife`	Kitchen/table knives.
44	`spoon`	Spoons.
45	`bowl`	Food/soup bowls.
46	`banana`	Bananas.
47	`apple`	Apples.
48	`sandwich`	Sandwiches.
49	`orange`	Oranges and citrus fruit.
50	`broccoli`	Broccoli florets.
51	`carrot`	Carrots.
52	`hot dog`	Hot dogs.
53	`pizza`	Pizza slices/pies.
54	`donut`	Doughnuts.
55	`cake`	Cakes and pastries.

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Category 7: Furniture & Decor (Classes 56–61)

Class ID	Class Name	Description
56	`chair`	Chairs, armchairs, office chairs.
57	`couch`	Sofas, couches, settees.
58	`potted plant`	Indoor/outdoor potted plants.
59	`bed`	Beds and mattresses.
60	`dining table`	Tables, dining tables, desks.
61	`toilet`	Toilets and restrooms.

Category 8: Electronics & Appliances (Classes 62–72)

Class ID	Class Name	Description
62	`tv`	Television screens, displays, monitors.
63	`laptop`	Laptop computers and notebooks.
64	`mouse`	Computer mice.
65	`remote`	TV/device remote controls.
66	`keyboard`	Computer keyboards.
67	`cell phone`	Mobile phones, smartphones, handheld devices.
68	`microwave`	Microwave ovens.
69	`oven`	Kitchen ovens and stoves.
70	`toaster`	Bread toasters.
71	`sink`	Kitchen/bathroom sinks.
72	`refrigerator`	Refrigerators and freezers.

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Category 9: Household & Personal Goods (Classes 73–79)

Class ID	Class Name	Description
73	`book`	Printed books and notebooks.
74	`clock`	Wall clocks, alarm clocks.
75	`vase`	Flower vases and decorative urns.
76	`scissors`	Scissors and shears.
77	`teddy bear`	Stuffed animals and teddy bears.
78	`hair drier`	Hair dryers.
79	`toothbrush`	Toothbrushes.

4. Detection Output Data Schema

Every detection object outputted by the service (via REST API `/api/v1/detections`, CSV export, or live UI overlay) contains the following schema attributes:

Field Name	Type	Unit / Range	Description
`class`	String	Text	Object label or combined demographic string (e.g., `"car"` or `"Gender: Male (96%) | Age: 32 years"`).
`classId`	Integer	0 – 79	COCO class ID index corresponding to the table above.
`confidence`	Float	0.00 – 1.00	Probability score of detection accuracy (e.g. `0.92` = 92%).
`left`	Float	0.00 – 1.00	Normalized X coordinate of the bounding box left edge.
`top`	Float	0.00 – 1.00	Normalized Y coordinate of the bounding box top edge.
`right`	Float	0.00 – 1.00	Normalized X coordinate of the bounding box right edge.
`bottom`	Float	0.00 – 1.00	Normalized Y coordinate of the bounding box bottom edge.

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Example REST API JSON Output (`GET /api/v1/detections`)


```
{
  "timestamp": "2026-10-24 14:35:10.450",
  "count": 2,
  "detections": [
    {
      "class": "Gender: Female (95%) | Age: 26 years",
      "classId": 0,
      "confidence": 0.92,
      "left": 0.18,
      "top": 0.10,
      "right": 0.48,
      "bottom": 0.82
    },
    {
      "class": "cell phone",
      "classId": 67,
      "confidence": 0.89,
      "left": 0.52,
      "top": 0.40,
      "right": 0.65,
      "bottom": 0.62
    }
  ]
}
```

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Example CSV Export Log Format (`GET /api/v1/csv` or `Documents/detections.csv`)

```
    Timestamp,Class,Confidence,Left,Top,Right,Bottom
    2026-10-24 14:35:10.450,Gender: Female (95%) | Age: 26
years,0.92,0.18,0.10,0.48,0.82
    2026-10-24 14:35:10.450,cell phone,0.89,0.52,0.40,0.65,0.62
```