

AUTOMATED FACE RECOGNITION SYSTEM

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ABSTRACT:

Automated face recognition aims to identify people in images or videos using pattern recognition techniques. Automated face recognition is widely used in applications ranging from social media to advanced authentication systems. The automatic recognition of faces captured by digital cameras in unconstrained, real-world environment is still very challenging, since it involves important variations in both acquisition conditions as well as in facial expressions . Thus, this project introduces the topic of automated face recognition using sensors and how a sensor sense human face. This project also includes various domains where this system is used.

REQUIREMENT ANALYSIS :**list of tables:**

Sensor

HumanFace

DeviceType

Domain

Senses

UsedFor

List of attributes with their domain types:

Sensor:

Energy:energy-char()

Type:type-char()

Cost:cost-Number()

Lifetime:lifetime-Number()

Sensor Id:s_id-Number()

HumanFace:

EyeOrbit:orbit-char()

IrisColor:color-char()

FaceShape:shape-char()

Nose:nose-char()

Distance between 2eyes:distance-Number()

Domain:

Domain_Id:did-Number()

DomainType:type-char()

Purpose:purpose-char()

DeviceType:

Sensor Id:s_id-Number()

Device:device-char()

Cost:cost-char()

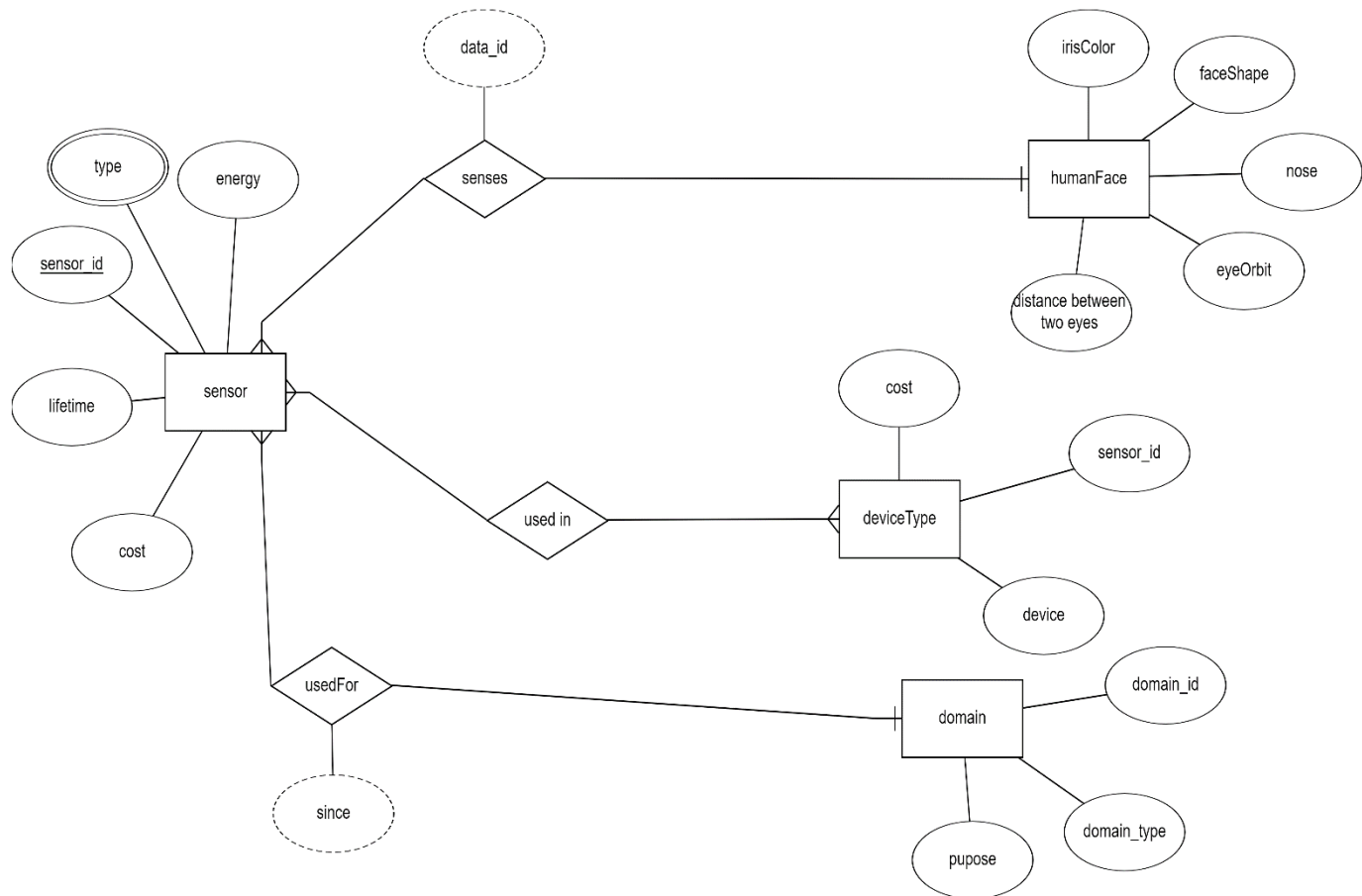
Senses:

DataStoredPath:d_id-Number()

UsedFor:

Since:since-Number()

ER DIAGRAM :



Mapping cardinalities and participation constraints :

A sensor senses various features of a human face. So mapping cardinalities here is one to many between sensor and humanFace.

Many sensors are used in different devices like mobiles, camera, lockers, laptops etc. So mapping cardinalities here is many to many between sensors and deviceType.

A sensor is used in different domains in our daily life for different purposes. So mapping cardinalities here is one to many between sensor and domain.

DDL COMMANDS:

```
SQL> create table sensor(
  2 lifetime number(5),
  3 sensor_id number(5),
  4 cost number(5),
  5 type char(5),
  6 energy char(15));
```

Table created.

```
SQL> select * from sensor
  2 ;
```

no rows selected

```
SQL> desc sensor;
```

Name	Null?	Type
LIFETIME		NUMBER(5)
SENSOR_ID		NUMBER(5)
COST		NUMBER(5)
TYPE		CHAR(5)
ENERGY		CHAR(15)

```
SQL> create table humanFace(
  2 irisColor char(10),
  3 faceShape char(15),
  4 nose char(15),
  5 orbit char(15),
  6 distanceOfTwoEyes number(10));
```

Table created.

```
SQL> desc humanFace
```

Name	Null?	Type
IRISCOLOR		CHAR(10)
FACESHape		CHAR(15)
NOSE		CHAR(15)
ORBIT		CHAR(15)
DISTANCEOFTWOEYES		NUMBER(10)

```
SQL> create table senses(
  2 data_id number(10));
```

Table created.

```
SQL> create table usedFor(
  2 since number(5));
```

Table created.

```
SQL> desc usedFor;
```

Name	Null?	Type
SINCE		NUMBER(5)

```
SQL> desc senses;
```

Name	Null?	Type
DATA_ID		NUMBER(10)

```
SQL> desc deviceType;
```

Name	Null?	Type
SENSOR_ID		NUMBER(5)
DEVICE		CHAR(20)
COST		NUMBER(10)

```
SQL> create table senses(
  2 data_id number(10));
```

Table created.

```
SQL> create table usedFor(
  2 since number(5));
```

Table created.

```
SQL> create table domain(
  2 domainId number(5),
  3 domainType char(30),
  4 purpose char(30));
```

Table created.

```
SQL> desc domain;
```

Name	Null?	Type
DOMAINID		NUMBER(5)
DOMAINTYPE		CHAR(30)
PURPOSE		CHAR(30)

```
alter table sensor add(primary key(sensor_id))
ERROR at line 1:
ORA-00907: missing right parenthesis

SQL> alter table sensor add(primary key(sensor_id));

Table altered.

SQL> alter table devicetype add foreign key(sensor_id) references sensor;

Table altered.
```

```
SQL> create table senses(
  2 data_id number(10));

Table created.

SQL> create table usedFor(
  2 since number(5));

Table created.

SQL> desc usedFor;
Name                               Null?   Type
-----
SINCE                               NUMBER(5)

SQL> desc senses;
Name                               Null?   Type
-----
DATA_ID                             NUMBER(10)
```

DML COMMANDS:

```
SQL> insert into sensor values(&lifetime,&sensor_id,&cost,'&type','&energy');
Enter value for lifetime: 5
Enter value for sensor_id: 1
Enter value for cost: 10000
Enter value for type: 3D
Enter value for energy: solar
old 1: insert into sensor values(&lifetime,&sensor_id,&cost,'&type','&energy')
new 1: insert into sensor values(5,1,10000,'3D','solar')

1 row created.

SQL> /
Enter value for lifetime: 10
Enter value for sensor_id: 2
Enter value for cost: 10000
Enter value for type: 3D
Enter value for energy: solar
old 1: insert into sensor values(&lifetime,&sensor_id,&cost,'&type','&energy')
new 1: insert into sensor values(10,2,10000,'3D','solar')

1 row created.

SQL> /
Enter value for lifetime: 10
Enter value for sensor_id: 3
Enter value for cost: 5000
Enter value for type: 2D
Enter value for energy: electrical
old 1: insert into sensor values(&lifetime,&sensor_id,&cost,'&type','&energy')
new 1: insert into sensor values(10,3,5000,'2D','electrical')

1 row created.

SQL> /
Enter value for lifetime: 20
Enter value for sensor_id: 4
Enter value for cost: 5000
Enter value for type: 3D
Enter value for energy: electrical
old 1: insert into sensor values(&lifetime,&sensor_id,&cost,'&type','&energy')
new 1: insert into sensor values(20,4,5000,'3D','electrical')

1 row created.

SQL> /
Enter value for lifetime: 30
Enter value for sensor_id: 5
Enter value for cost: 5000
Enter value for type: 3D
Enter value for energy: electrical
```



```
SQL> insert into humanface values('&iriscolor','&faceshape','&nose','&orbit','&distanceoftwoeyes');
Enter value for iriscolor: blue
Enter value for faceshape: oval
Enter value for nose: bulbous
Enter value for orbit: superior margin
Enter value for distanceoftwoeyes: 4
old 1: insert into humanface values('&iriscolor','&faceshape','&nose','&orbit','&distanceoftwoeyes)
new 1: insert into humanface values('blue','oval','bulbous','superior margin',4)

1 row created.

SQL> /
Enter value for iriscolor: green
Enter value for faceshape: round
Enter value for nose: combo
Enter value for orbit: inferior margin
Enter value for distanceoftwoeyes: 3
old 1: insert into humanface values('&iriscolor','&faceshape','&nose','&orbit','&distanceoftwoeyes)
new 1: insert into humanface values('green','round','combo','inferior margin',3)

1 row created.

SQL> /
Enter value for iriscolor: red
Enter value for faceshape: oval
Enter value for nose: nixon
Enter value for orbit: medial
Enter value for distanceoftwoeyes: 2
old 1: insert into humanface values('&iriscolor','&faceshape','&nose','&orbit','&distanceoftwoeyes)
new 1: insert into humanface values('red','oval','nixon','medial',2)

1 row created.

SQL> /
Enter value for iriscolor: black
Enter value for faceshape: round
Enter value for nose: hawk
Enter value for orbit: cateral
Enter value for distanceoftwoeyes: 1
old 1: insert into humanface values('&iriscolor','&faceshape','&nose','&orbit','&distanceoftwoeyes)
new 1: insert into humanface values('black','round','hawk','cateral',1)

1 row created.

SQL> /
```

```
SQL> insert into domain values(&domainid,&domaintype,&purpose');
Enter value for domainid: 100
Enter value for domaintype: education
Enter value for purpose: attendance
old 1: insert into domain values(&domainid,&domaintype,&purpose')
new 1: insert into domain values(100,'education','attendance')

1 row created.

SQL> /
Enter value for domainid: 200
Enter value for domaintype: banking
Enter value for purpose: security
old 1: insert into domain values(&domainid,&domaintype,&purpose')
new 1: insert into domain values(200,'banking','security')

1 row created.

SQL> 300
SP2-0226: Invalid line number
SQL> /
Enter value for domainid: 300
Enter value for domaintype: social meadia
Enter value for purpose: privacy
old 1: insert into domain values(&domainid,&domaintype,&purpose')
new 1: insert into domain values(300,'social meadia','privacy')

1 row created.

SQL> /
Enter value for domainid: 400
Enter value for domaintype: police station
Enter value for purpose: information
old 1: insert into domain values(&domainid,&domaintype,&purpose')
new 1: insert into domain values(400,'police station','information')

1 row created.

SQL> /
Enter value for domainid: 500
Enter value for domaintype: aadhaar card
Enter value for purpose: identification
old 1: insert into domain values(&domainid,&domaintype,&purpose')
new 1: insert into domain values(500,'aadhaar card','identification')

1 row created.
```

```
SQL> insert into devicetype values(&sensor_id,&'device',&cost);
Enter value for sensor_id: 1
Enter value for device: mobile
Enter value for cost: 20000
old 1: insert into devicetype values(&sensor_id,&'device',&cost)
new 1: insert into devicetype values(1,'mobile',20000)

1 row created.

SQL> /
Enter value for sensor_id: 2
Enter value for device: camera
Enter value for cost: 10000
old 1: insert into devicetype values(&sensor_id,&'device',&cost)
new 1: insert into devicetype values(2,'camera',10000)

1 row created.

SQL> /
Enter value for sensor_id: 3
Enter value for device: laptop
Enter value for cost: 50000
old 1: insert into devicetype values(&sensor_id,&'device',&cost)
new 1: insert into devicetype values(3,'laptop',50000)

1 row created.

SQL> /
Enter value for sensor_id: 4
Enter value for device: doors
Enter value for cost: 5000
old 1: insert into devicetype values(&sensor_id,&'device',&cost)
new 1: insert into devicetype values(4,'doors',5000)

1 row created.

SQL> /
Enter value for sensor_id: 5
Enter value for device: locker
Enter value for cost: 20000
old 1: insert into devicetype values(&sensor_id,&'device',&cost)
new 1: insert into devicetype values(5,'locker',20000)

1 row created.
```

```
SQL> insert into usedfor values(&number);
Enter value for number: 2015
old 1: insert into usedfor values(&number)
new 1: insert into usedfor values(2015)

1 row created.

SQL> /
Enter value for number: 2010
old 1: insert into usedfor values(&number)
new 1: insert into usedfor values(2010)

1 row created.

SQL> /
Enter value for number: 2016
old 1: insert into usedfor values(&number)
new 1: insert into usedfor values(2016)

1 row created.

SQL> /
Enter value for number: 2014
old 1: insert into usedfor values(&number)
new 1: insert into usedfor values(2014)

1 row created.

SQL> /
Enter value for number: 2012
old 1: insert into usedfor values(&number)
new 1: insert into usedfor values(2012)

1 row created.
```

```
SQL> insert into senses values(&number);
Enter value for number: 200
old 1: insert into senses values(&number)
new 1: insert into senses values(200)

1 row created.

SQL> /
Enter value for number: 300
old 1: insert into senses values(&number)
new 1: insert into senses values(300)

1 row created.

SQL> /
Enter value for number: 400
old 1: insert into senses values(&number)
new 1: insert into senses values(400)

1 row created.

SQL> /
Enter value for number: 500
old 1: insert into senses values(&number)
new 1: insert into senses values(500)

1 row created.

SQL> /
Enter value for number: 600
old 1: insert into senses values(&number)
new 1: insert into senses values(600)

1 row created.
```


DDL COMMANDS: