1. **Dependency Diagram**

Employee\_num

Firstname

sex

Address

Lastname

Social number

Social num

Sex

Address

AUD\_Regi\_TMSTP

Phone\_num

Order-num

Order\_date

Order\_ETA

Receiver\_phone

Destination

Receiver name

Equp\_num

brand

Manu\_date

Merchandise\_name

weight

heigh

Order\_date

Tag\_num

tamperature

humidity

Tag\_ETA

Last\_dect\_TMSTP

safty

Steadable\_num

Ip\_address

address

Manu\_date

Equp\_num

AUD\_Scan\_TMSMTP

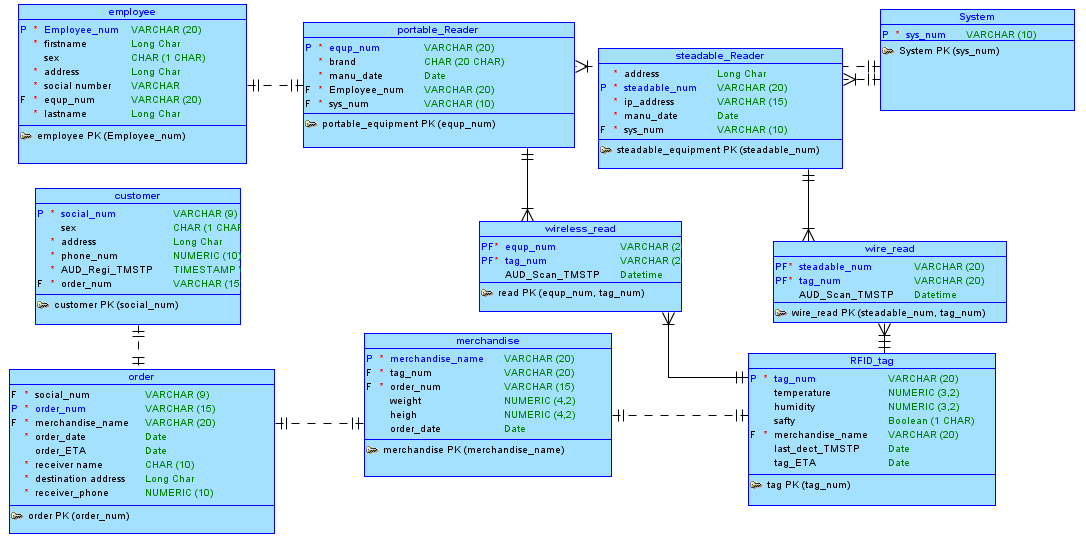
Tag\_num

Steadable\_num

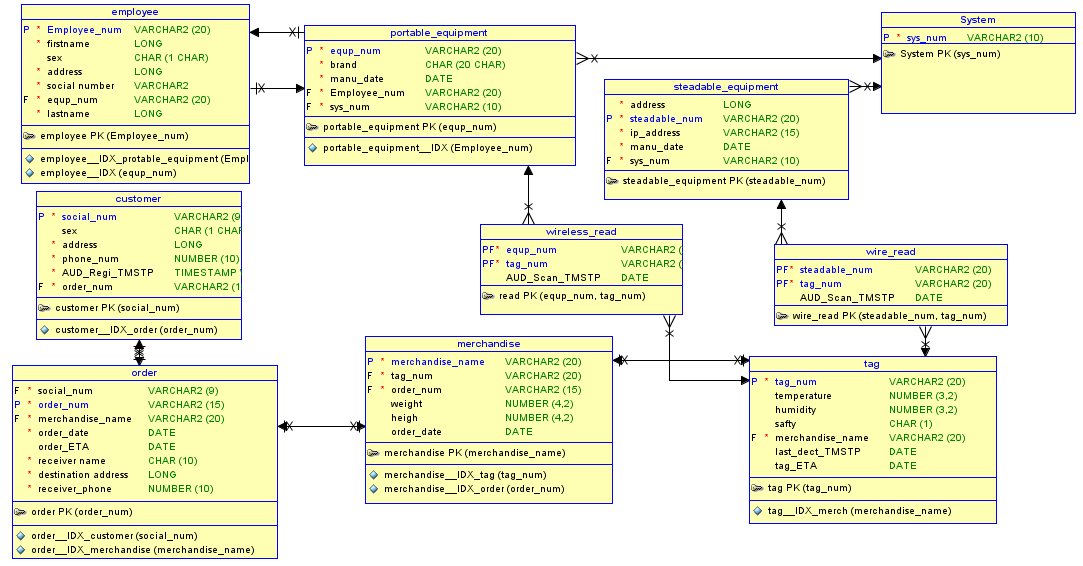
AUD\_Scan\_TMSTP

Tag\_num

1. **Logic ERD**



1. **The Relational Database Diagram.**



/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* DROP OBJECTS \*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

DROP TABLE employee CASCADE CONSTRAINTS PURGE;

DROP TABLE customer CASCADE CONSTRAINTS PURGE;

DROP TABLE order CASCADE CONSTRAINTS PURGE;

DROP TABLE protable\_equipment CASCADE CONSTRAINTS PURGE;

DROP TABLE steadable\_equipment CASCADE CONSTRAINTS PURGE;

DROP TABLE system CASCADE CONSTRAINTS PURGE;

DROP TABLE wireless\_read CASCADE CONSTRAINTS PURGE;

DROP TABLE wire\_read CASCADE CONSTRAINTS PURGE;

DROP TABLE merchandise CASCADE CONSTRAINTS PURGE;

DROP TABLE tag CASCADE CONSTRAINTS PURGE;

DROP SEQUENCE SEQ\_ employee;

DROP SEQUENCE SEQ\_ pro\_equip;

DROP SEQUENCE SEQ\_ste\_equip;

DROP SEQUENCE SEQ\_ system;

DROP SEQUENCE SEQ\_ wireless;

DROP SEQUENCE SEQ\_ wire;

DROP SEQUENCE SEQ\_merchan;

DROP SEQUENCE SEQ\_ tag;

1. **The SQL DDL script**

-- Operator Oracle SQL Developer Data Modeler 3.1.4.710

-- Time: 2013-04-03 00:49:13 EDT

-- Location: Oracle Database 11g

-- Type: Oracle Database 11g

CREATE TABLE System

(

sys\_num VARCHAR2 (10) NOT NULL

)

;

COMMENT ON TABLE System IS 'System info: other search engine'

;

ALTER TABLE System

ADD CONSTRAINT "System PK" PRIMARY KEY ( sys\_num ) ;

CREATE TABLE customer

(

social\_num VARCHAR2 (9) NOT NULL ,

sex CHAR (1 CHAR) ,

address LONG NOT NULL ,

phone\_num NUMBER (10) NOT NULL ,

AUD\_Regi\_TMSTP TIMESTAMP WITH LOCAL TIME ZONE NOT NULL

)

;

COMMENT ON TABLE customer IS 'This entity is constitute by sender and receiver'

;

COMMENT ON COLUMN customer.social\_num IS 'social security number'

;

COMMENT ON COLUMN customer.address IS 'where the customer live'

;

COMMENT ON COLUMN customer.phone\_num IS 'Cellphone numer'

;

ALTER TABLE customer

ADD CONSTRAINT "customer PK" PRIMARY KEY ( social\_num ) ;

CREATE TABLE employee

(

Employee\_num VARCHAR2 (20) NOT NULL ,

firstname LONG NOT NULL ,

lastname LONG NOT NULL ,

sex CHAR (1 CHAR) ,

address LONG NOT NULL ,

"social number" VARCHAR2 NOT NULL ,

equp\_num VARCHAR2 (20) NOT NULL

)

;

COMMENT ON TABLE employee IS 'employe could use portable equipment to supervise merchandise through RFID tag'

;

COMMENT ON COLUMN employee.Employee\_num IS 'identify each employee, this is unique

'

;

COMMENT ON COLUMN employee.address IS 'address of emplyee'

;

COMMENT ON COLUMN employee."social number" IS 'social security number '

;

CREATE UNIQUE INDEX employee\_\_IDX ON employee

(

equp\_num ASC

)

;

ALTER TABLE employee

ADD CONSTRAINT "employee PK" PRIMARY KEY ( Employee\_num ) ;

CREATE TABLE merchandise

(

merchandise\_name VARCHAR2 (20) NOT NULL ,

tag\_num VARCHAR2 (20) NOT NULL ,

order\_num VARCHAR2 (15) NOT NULL ,

weight NUMBER (4,2) ,

heigh NUMBER (4,2) ,

order\_date DATE

)

;

COMMENT ON TABLE merchandise IS 'sent by customer(sender). Monitering all the time during transportation.'

;

COMMENT ON COLUMN merchandise.merchandise\_name IS 'merchandise number'

;

COMMENT ON COLUMN merchandise.tag\_num IS 'FKey'

;

COMMENT ON COLUMN merchandise.order\_num IS 'FKey

'

;

COMMENT ON COLUMN merchandise.weight IS 'norm of merchandise'

;

COMMENT ON COLUMN merchandise.heigh IS 'norm of merchandise'

;

COMMENT ON COLUMN merchandise.order\_date IS 'when the order is created'

;

CREATE UNIQUE INDEX merchandise\_\_IDX\_tag ON merchandise

(

tag\_num ASC

)

;

CREATE UNIQUE INDEX merchandise\_\_IDX\_order ON merchandise

(

order\_date ASC

)

;

ALTER TABLE merchandise

ADD CONSTRAINT "merchandise PK" PRIMARY KEY ( merchandise\_name ) ;

CREATE TABLE "order"

(

social\_num VARCHAR2 (9) NOT NULL ,

order\_num VARCHAR2 (15) NOT NULL ,

merchandise\_name VARCHAR2 (20) NOT NULL ,

order\_date DATE NOT NULL ,

order\_ETA DATE ,

"receiver name" CHAR (10) NOT NULL ,

"destination address" LONG NOT NULL ,

receiver\_phone NUMBER (10) NOT NULL

)

;

COMMENT ON TABLE "order" IS 'Customer(sender) creates order, one order can have several merchandises to send.'

;

COMMENT ON COLUMN "order".social\_num IS 'PKey'

;

COMMENT ON COLUMN "order".order\_num IS 'the number of order list'

;

COMMENT ON COLUMN "order".merchandise\_name IS 'PKey'

;

COMMENT ON COLUMN "order"."receiver name" IS 'receiver customer name'

;

COMMENT ON COLUMN "order"."destination address" IS 'address of receiver'

;

CREATE UNIQUE INDEX order\_\_IDX\_customer ON "order"

(

social\_num ASC

)

;

CREATE UNIQUE INDEX order\_\_IDX\_merchandise ON "order"

(

merchandise\_name ASC

)

;

ALTER TABLE "order"

ADD CONSTRAINT "order PK" PRIMARY KEY ( order\_num ) ;

CREATE TABLE portable\_equipment

(

equp\_num VARCHAR2 (20) NOT NULL ,

brand CHAR (20 CHAR) NOT NULL ,

manu\_date DATE NOT NULL ,

sys\_num VARCHAR2 (10) NOT NULL ,

Employee\_num VARCHAR2 (20) NOT NULL ,

)

;

COMMENT ON TABLE portable\_equipment IS 'reader equipment has two kinds: portable equipment and steadable equipment'

;

COMMENT ON COLUMN portable\_equipment.equp\_num IS 'equp\_num is unique number of portable equipment'

;

COMMENT ON COLUMN portable\_equipment.brand IS 'by which company manufactured'

;

COMMENT ON COLUMN portable\_equipment.manu\_date IS 'date when manufactated'

;

COMMENT ON COLUMN portable\_equipment.sys\_num IS 'FKey'

;

COMMENT ON COLUMN portable\_equipment.Employee\_num IS 'FKey'

;

CREATE UNIQUE INDEX portable\_equipment\_\_IDX\_sys ON portable\_equipment

(

sys\_num ASC

)

;

CREATE UNIQUE INDEX portable\_equipment\_\_IDX\_emp ON portable\_equipment

(

Employee\_num ASC

)

;

ALTER TABLE portable\_equipment

ADD CONSTRAINT "portable\_equipment PK" PRIMARY KEY ( equp\_num ) ;

CREATE TABLE steadable\_equipment

(

address LONG NOT NULL ,

steadable\_num VARCHAR2 (20) NOT NULL ,

ip\_address VARCHAR2 (15) NOT NULL ,

manu\_date DATE NOT NULL ,

sys\_num VARCHAR2 (10) NOT NULL ,

)

;

COMMENT ON TABLE steadable\_equipment IS 'reader equipment has two kinds: portable equipment and steadable equipment'

;

COMMENT ON COLUMN steadable\_equipment.address IS 'address where it located

'

;

COMMENT ON COLUMN steadable\_equipment.ip\_address IS 'special IP address of steadable equipment'

;

COMMENT ON COLUMN steadable\_equipment.manu\_date IS 'when this equipment manufactured'

;

CREATE INDEX steadable\_equipment\_\_IDX\_sys ON steadable\_equipment

(

sys\_num ASC

)

;

ALTER TABLE steadable\_equipment

ADD CONSTRAINT "steadable\_equipment PK" PRIMARY KEY ( steadable\_num ) ;

CREATE TABLE tag

(

tag\_num VARCHAR2 (20) NOT NULL ,

temperature NUMBER (3,2) ,

humidity NUMBER (3,2) ,

safty CHAR (1) ,

merchandise\_name VARCHAR2 (20) NOT NULL ,

last\_dect\_TMSTP DATE ,

tag\_ETA DATE

)

;

COMMENT ON TABLE tag IS 'RFID tag, contains a lot of safty info. Tags will be connected when passes through the steadable equipment or scaned by portable equipment which is used by employee.'

;

COMMENT ON COLUMN tag.tag\_num IS 'special number of RFID tag'

;

COMMENT ON COLUMN tag.temperature IS 'detection info from sensor'

;

COMMENT ON COLUMN tag.humidity IS 'detection info from sensor'

;

COMMENT ON COLUMN tag.safty IS 'detection info from sensor'

;

COMMENT ON COLUMN tag.merchandise\_name IS 'detection info from sensor'

;

COMMENT ON COLUMN tag.tag\_ETA IS 'estimated time of arrival'

;

CREATE UNIQUE INDEX tag\_\_IDX\_merch ON tag

(

merchandise\_name ASC

)

;

ALTER TABLE tag

ADD CONSTRAINT "tag PK" PRIMARY KEY ( tag\_num ) ;

CREATE TABLE wire\_read

(

steadable\_num VARCHAR2 (20) NOT NULL ,

tag\_num VARCHAR2 (20) NOT NULL

)

;

ALTER TABLE wire\_read

ADD CONSTRAINT "wire\_read PK" PRIMARY KEY ( steadable\_num, tag\_num ) ;

CREATE TABLE wireless\_read

(

equp\_num VARCHAR2 (20) NOT NULL ,

tag\_num VARCHAR2 (20) NOT NULL

)

;

ALTER TABLE wireless\_read

ADD CONSTRAINT "read PK" PRIMARY KEY ( equp\_num, tag\_num ) ;

ALTER TABLE wire\_read

ADD CONSTRAINT Relation\_11 FOREIGN KEY

(

tag\_num

)

REFERENCES tag

(

tag\_num

)

ON DELETE CASCADE

;

ALTER TABLE wireless\_read

ADD CONSTRAINT Relation\_5 FOREIGN KEY

(

tag\_num

)

REFERENCES tag

(

tag\_num

)

ON DELETE CASCADE

;

ALTER TABLE steadable\_equipment

ADD CONSTRAINT Relation\_7 FOREIGN KEY

(

sys\_num

)

REFERENCES System

(

sys\_num

)

ON DELETE CASCADE

;

ALTER TABLE employee

ADD CONSTRAINT employee\_portable\_equipment\_FK FOREIGN KEY

(

equp\_num

)

REFERENCES portable\_equipment

(

equp\_num

)

ON DELETE CASCADE

;

ALTER TABLE portable\_equipment

ADD CONSTRAINT manage FOREIGN KEY

(

Employee\_num

)

REFERENCES employee

(

Employee\_num

)

ON DELETE CASCADE

;

ALTER TABLE merchandise

ADD CONSTRAINT notify FOREIGN KEY

(

tag\_num

)

REFERENCES tag

(

tag\_num

)

ON DELETE CASCADE

;

ALTER TABLE tag

ADD CONSTRAINT notify FOREIGN KEY

(

merchandise\_name

)

REFERENCES merchandise

(

merchandise\_name

)

ON DELETE CASCADE

;

ALTER TABLE merchandise

ADD CONSTRAINT "order" FOREIGN KEY

(

order\_num

)

REFERENCES "order"

(

order\_num

)

ON DELETE CASCADE

;

ALTER TABLE "order"

ADD CONSTRAINT "order" FOREIGN KEY

(

social\_num

)

REFERENCES customer

(

social\_num

)

ON DELETE CASCADE

;

ALTER TABLE "order"

ADD CONSTRAINT orderv1 FOREIGN KEY

(

merchandise\_name

)

REFERENCES merchandise

(

merchandise\_name

)

ON DELETE CASCADE

;

ALTER TABLE wireless\_read

ADD CONSTRAINT readv1 FOREIGN KEY

(

equp\_num

)

REFERENCES portable\_equipment

(

equp\_num

)

ON DELETE CASCADE

;

ALTER TABLE portable\_equipment

ADD CONSTRAINT support FOREIGN KEY

(

sys\_num

)

REFERENCES System

(

sys\_num

)

ON DELETE CASCADE

;

ALTER TABLE wire\_read

ADD CONSTRAINT wire\_Read FOREIGN KEY

(

steadable\_num

)

REFERENCES steadable\_equipment

(

steadable\_num

)

ON DELETE CASCADE

;

CREATE OR REPLACE VIEW V\_System ( sys\_num )

AS SELECT

sys\_num

FROM

System ;

CREATE OR REPLACE VIEW V\_customer ( social\_num,

sex,

address,

phone\_num )

AS SELECT

social\_num,

sex,

address,

phone\_num

FROM

customer ;

CREATE OR REPLACE VIEW V\_employee ( Employee\_num,

firstname,

lastname,

sex,

address,

"social number",

equp\_num )

AS SELECT

Employee\_num,

firstname,

lastname,

sex,

address,

"social number",

equp\_num

FROM

employee ;

CREATE OR REPLACE VIEW V\_merchandise ( merchandise\_name,

tag\_num,

order\_num,

weight,

heigh,

order\_date,

ETA )

AS SELECT

merchandise\_name,

tag\_num,

order\_num,

weight,

heigh,

order\_date,

ETA

FROM

merchandise ;

CREATE OR REPLACE VIEW V\_order ( social\_num,

order\_num,

merchandise\_name,

order\_date,

order\_ETA,

"receiver name",

"destination address",

receiver\_phone )

AS SELECT

social\_num,

order\_num,

merchandise\_name,

order\_date,

order\_ETA,

"receiver name",

"destination address",

receiver\_phone

FROM

"order" ;

CREATE OR REPLACE VIEW V\_portable\_equipment ( equp\_num,

brand,

manu\_date,

sys\_num,

Employee\_num )

AS SELECT

equp\_num,

brand,

manu\_date,

sys\_num,

Employee\_num

FROM

portable\_equipment ;

CREATE OR REPLACE VIEW V\_steadable\_equipment ( address,

steadable\_num,

ip\_address,

manu\_date,

sys\_num )

AS SELECT

address,

steadable\_num,

ip\_address,

manu\_date,

sys\_num

FROM

steadable\_equipment ;

CREATE OR REPLACE VIEW V\_tag ( tag\_num,

temperature,

humidity,

safty,

merchandise\_name )

AS SELECT

tag\_num,

temperature,

humidity,

safty,

merchandise\_name

FROM

tag ;

CREATE OR REPLACE VIEW V\_wire\_read ( steadable\_num,

tag\_num )

AS SELECT

steadable\_num,

tag\_num

FROM

wire\_read ;

CREATE OR REPLACE VIEW V\_wireless\_read ( equp\_num,

tag\_num )

AS SELECT

equp\_num,

tag\_num

FROM

wireless\_read ;

CREATE OR REPLACE TRIGGER manu\_date

BEFORE INSERT

ON protable\_equipment

for each row

BEGIN

:new.manu\_date := sysdate;

END;

/

CREATE OR REPLACE TRIGGER manu\_date

BEFORE INSERT

ON steadable\_equipment

for each row

BEGIN

:new.manu\_date:= sysdate;

END;

/

CREATE OR REPLACE TRIGGER AUD\_Regi\_TMSTP

BEFORE INSERT

ON customer

for each row

BEGIN

:new.AUD\_Regi\_TMSTP := sysdate;

END;

/

CREATE OR REPLACE TRIGGER order\_ETA

BEFORE UPLOAD

ON order

for each row

BEGIN

SELECT ETA INTO v\_order FROM tag;

:new.order\_ETA := ETA;

END;

/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\* CREATE SEQUNCES\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

---- These sequences are used to create primary keys of the table

---- and work as sequence generators. They begin with 1 and with

---- each record insert keep increasing with 1.

CREATE SEQUENCE SEQ\_ employee

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ pro\_equip

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ ste\_equip

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ system

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ wireless

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ wire

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ merchan

INCREMENT BY 1

START WITH 1;

CREATE SEQUENCE SEQ\_ tag

INCREMENT BY 1

START WITH 1;

-- Oracle SQL Developer Data Modeler 概要报告:

--

-- CREATE TABLE 10

-- CREATE INDEX 9

-- ALTER TABLE 23

-- CREATE VIEW 10

-- CREATE PACKAGE 0

-- CREATE PACKAGE BODY 0

-- CREATE PROCEDURE 0

-- CREATE FUNCTION 0

-- CREATE TRIGGER 4

-- ALTER TRIGGER 0

-- CREATE STRUCTURED TYPE 0

-- CREATE COLLECTION TYPE 0

-- CREATE CLUSTER 0

-- CREATE CONTEXT 0

-- CREATE DATABASE 0

-- CREATE DIMENSION 0

-- CREATE DIRECTORY 0

-- CREATE DISK GROUP 0

-- CREATE ROLE 0

-- CREATE ROLLBACK SEGMENT 0

-- CREATE SEQUENCE 0

-- CREATE MATERIALIZED VIEW 0

-- CREATE SYNONYM 0

-- CREATE TABLESPACE 0

-- CREATE USER 0

--

-- DROP TABLESPACE 0

-- DROP DATABASE 0

--

-- ERRORS 0

-- WARNINGS 0