

FIG. 1A



FIG. 1B

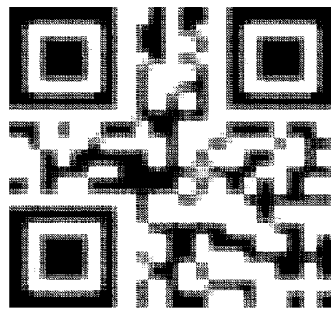


FIG. 1C

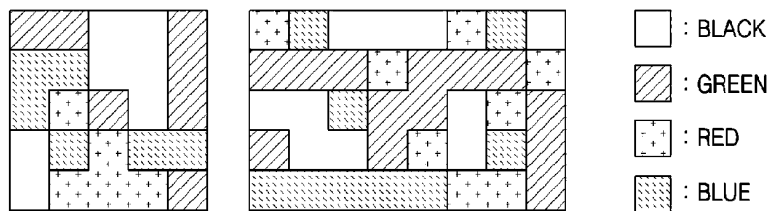


FIG. 1D

CLASSIFICATION	CHARACTERISTICS	IMAGE TAG		RFID
		BAR CODE	COLOR CODE	
TECHNICAL CHARACTERISTICS	TYPICAL READ RANGE	CLOSE	CLOSE	- PASSIVE RFID - LF 134.2kHz: 1.5m - HF 13.56MHz: 1.0m - UHFV 868MHz (EU): 0.6m - UHFV 915MHz (US): 3m - MW 2.45GHz (EU): 0.5m - MW 2.45GHz (US): 2.0m
	ON PAPER	YES	YES	LABEL SHAPE (FLEXIBLE TAG) CAN BE ATTACHED TO THICK PAPER (80μm OR THICKER)
	WASHABLE/ USABLE IN RAINY WEATHER	YES (FOR MEDIA SUCH AS CLOTHES AND PLASTIC)	YES (FOR MEDIA SUCH AS CLOTHES AND PLASTIC)	ANTENNA/CHIP MAY BE DAMAGED BY INTENSE CLEANING. USABLE OUTDOORS IN RAINY WEATHER
	ROBUSTNESS (IMPACT, TEMPERATURE, HUMIDITY)	VARYING WITH RESPECT TO PRINTING MEDIUM (NOT AFFECTED BY IMPACT)	VARYING WITH RESPECT TO PRINTING MEDIUM (NOT AFFECTED BY IMPACT. PAPER MAY BE DISCOLORED BY TEMPERATURE)	RARELY AFFECTED BY IMPACT, TEMPERATURE, OR HUMIDITY
	TAG LIFE SPAN	VARYING WITH RESPECT TO PRINTING MEDIUM	VARYING WITH RESPECT TO PRINTING MEDIUM AND METHOD	SEMI-PERMANENT
	READER TYPE	DEDICATED READER	GENERAL PURPOSE WEB CAM, PDA, CAMERA PHONE, ETC	DEDICATED READER
RECOGNITION CHARACTERISTICS	READ SPEED	SLOW	SLOW	VERY FAST
	READING PENETRATION	IMPOSSIBLE IN OPAQUE OBJECT	IMPOSSIBLE IN OPAQUE OBJECT	POSSIBLE FOR GLASS, WOOD BUT NOT METAL
	READING INTERFERENCE (LIGHT, RADIO WAVES)	RARELY AFFECTED	AFFECTED BY LIGHT	AFFECTED BY SURROUNDING RADIO WAVES
	READING INTERFERENCE (TAG AND READER POSITIONS)	ERROR RATIO INCREASING BY ORIENTATION	ERROR RATIO INCREASING BY ORIENTATION	IF MULTIPLE TAGS WITHIN READING DISTANCE, INTERFERENCE OCCURS
DESIGN	AESTHETICS	BAD	GOOD	-
RECOGNITION CONVENIENCE/ USAGE CHARACTERISTICS	UNAUTHORIZED COPY/MODIFY	POSSIBLE	POSSIBLE	IMPOSSIBLE
	VISIBILITY/LINE OF SIGHT	NEEDED	NEEDED	NOT NEEDED
	TAG READ METHOD	MANUAL	MANUAL	AUTOMATIC
	AUTOMATIC TAG DISCOVERY	NO	NO	YES
	TRANSMISSION VIA INFORMATION DEVICE	POSSIBLE TO TRANSMIT USING FAX, EMAIL	POSSIBLE TO TRANSMIT USING FAX, EMAIL	IMPOSSIBLE
	GENERATION BY ORDINARY USER	POSSIBLE BY ORDINARY PRINTER	POSSIBLE BY ORDINARY PRINTER	RFID WRITER NEEDED/DIFFICULT USAGE
	INFORMATION STORAGE FUNCTION WHEN NECESSARY	IMPOSSIBLE	IMPOSSIBLE	RFID WRITER NEEDED/REWRITABLE RFID POSSIBLE

FIG. 2

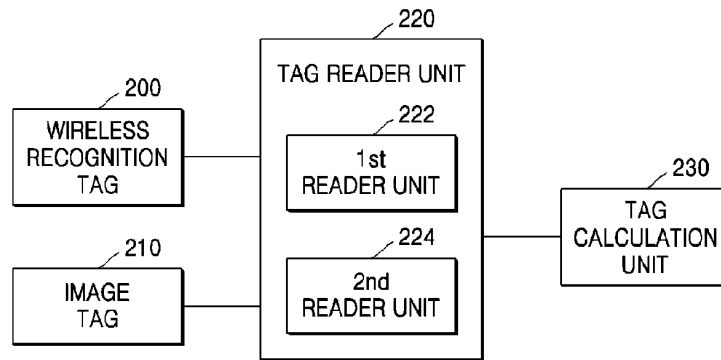


FIG. 3

MODEL	HFID				IMAGE CODE		AVAILABLE FUNCTIONS	
DUAL	READ ONLY	A XXXXX...			A	A	COMPARE	COMPARISON OF RFID AND IMAGE CODE
PARTIAL	READ ONLY	A XBXCX...			B	C	INDICATE	RFID: ACCESS ALL INFORMATION image: ACCESS INDIVIDUAL INFORMATION
RELATIVE	READ ONLY	A XXXXX...			A'	A''	SECURE	DECRYPT ENCRYPTED RFID INFORMATION THROUGH IMAGE CODE
	READ ONLY	A XBXCX...			A'	A''	CONVERT	EXTRACT INFORMATION CORRESPONDING TO POSITION INFORMATION OF IMAGE CODE FROM AMONG A PLURALITY OF RFID INFORMATION ITEMS
REBIND	READ /WRITE	A XXXXX...	→	A XBXCX...	B	C	ADD	ADD IMAGE CODE VALUE TO RFID INFORMATION
	READ /WRITE	A XBXCX...	→	A XXDEX...	D	E	CHANGE	CONVERT AREA VALUE FROM AMONG RFID INFORMATION ITEMS INTO IMAGE CODE VALUE
	READ /WRITE	A XBXCX...	→	A XXXXX...	B	C	DELETE	DELETE INFORMATION CORRESPONDING TO IMAGE CODE VALUE FROM AMONG RFID INFORMATION ITEMS
DISCRETE	READ ONLY	A XXXXX...			B	C	-	-

A: SERIAL NUMBER OF RFID
 A', A'': CODES RELATED TO A
 B, C, D, E: USER CODES
 X: NO DATA

FIG. 4

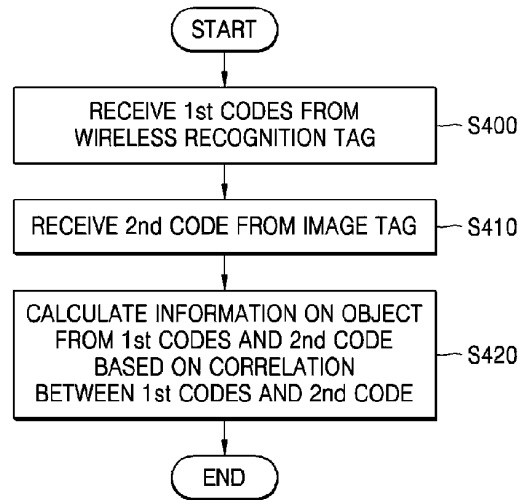


FIG. 5A

MODEL	APPLICATION EXAMPLE
DUAL	RFID ATTACHED TO PRODUCT. IMAGE CODE ATTACHED TO CATALOGUE, MANUAL, WRAPPER
PARTIAL	RFID ATTACHED TO BOOKS AND PROVIDING GENERAL INFORMATION ON BOOK. IMAGE CODE ATTACHED TO PAGE OF BOOK, AND PROVIDING DETAILED INFORMATION ON CONTENTS OF BOOK
RELATIVE	A/S CENTER ACCESSES CUSTOMER INFORMATION THROUGH PRODUCT RFID AND IMAGE CODE OF PRODUCT QUALITY CERTIFICATE. CUSTOMER ACCESSES A/S INFORMATION THROUGH PRODUCT RFID AND IMAGE CODE OF RECEIPT
	IN PROCESS OF SHIPMENT, DISTRIBUTION, AND WAREHOUSING, IMAGE CODE OF PERSON IN CHARGE IS RECOGNIZED AND CONVERTED WITH RFID CODE OF EACH STEP TO ACCESS INFORMATION OF HANDLING DOCUMENT
REBIND	CHANGE RFID INFORMATION USING IMAGE CODE ATTACHED TO DOCUMENT - RFID ATTACHED TO PRODUCT - IMAGE CODE ATTACHED TO DOCUMENT INCLUDING QUALITY CERTIFICATE (CAN BE TRANSMITTED USING FAX)
DISCRETE	BOTH RFID AND IMAGE CODE ATTACHED TO PRODUCT - RFID PROVIDES PRODUCT INFORMATION SUCH AS SIZE, VOLUME, WEIGHT. IMAGE CODE PROVIDES SALES INFORMATION SUCH AS PRICE, SELLER, TELEPHONE NUMBER.

FIG. 5B

MODEL	APPLICATION EXAMPLE
DUAL	RFID (BOOK COVER) = IMAGE CODE (CATALOGUE, BOOK SEARCH COMPUTER SCREEN, NEW BOOK LIST)
PARTIAL	RFID (BOOKCOVER): OVERALL BOOK INFORMATION IMAGE CODE (PAGE OF BOOK): DETAILED RELATED INFORMATION ON PART OF BOOK (TEXT, IMAGE, MOVING PICTURES, ETC.)
RELATIVE	RFID (ID CARD): USER INFORMATION, DECRYPTION KEY IMAGE CODE (PAGES OF BOOK): ENCRYPTED INFORMATION SELECTIVELY PROVIDED TO AUTHORIZED USERS - AUTHENTICATION USING RFID USER INFORMATION - DECRYPTION OF ENCRYPTED INFORMATION WITH RFID KEY - UNAUTHORIZED USER UNABLE TO ACCESS INFORMATION
REBIND	RFID (ID CARD): USER INFORMATION, BOOK LENDING LIST IMAGE CODE (CATALOGUE, BOOK SEARCH COMPUTER SCREEN, NEW BOOK LIST) - AFTER SEARCHING FOR BOOK IN CATALOGUE, WRITE DESIRED BOOK INFORMATION IN BOOK LENDING LIST OF RFID - USE LENDING SERVICE OF BOOK REGISTERED IN BOOK LENDING LIST FROM LIBRARY

FIG. 6

CLASSIFICATION	CHARACTERISTICS	IMAGE TAG	RFID	HYBRID TAG
TECHNICAL CHARACTERISTICS	ROBUSTNESS (REPAIRABLE WHEN DAMAGED)	MID	LOW	HIGH (IN CASE OF DUAL TAG, AND RELATIVE TAG)
RECOGNITION CHARACTERISTICS	INTERFERENCE BETWEEN TAGS	LOW	HIGH	LOW (IN CASE OF DUAL TAG)
RECOGNITION CONVENIENCE	VISIBILITY/LINE OF SIGHT	NEEDED	NOT NEEDED	NOT NEEDED
	TAG READ METHOD	MANUAL	AUTOMATIC	MANUAL OR AUTOMATIC
	RECOGNITION DEVICE	GENERAL PURPOSE DEVICE (WHEN COLORCODE IS USED)	DEDICATED DEVICE	GENERAL PURPOSE DEVICE (WHEN COLORCODE IS USED)
	TRANSMISSION VIA INFORMATION DEVICE	POSSIBLE TO TRANSMIT USING FAX, EMAIL	IMPOSSIBLE	POSSIBLE TO TRANSMIT USING FAX, EMAIL (IN CASE OF PARTIAL TAG, RELATIVE TAG)
	SECURITY	WEAK (POSSIBLE TO COPY)	MID	STRONG (IN CASE OF RELATIVE TAG)
	INFORMATION MODIFIABILITY	IMPOSSIBLE	POSSIBLE (IN CASE OF REWRITABLE RFID)	POSSIBLE (IN CASE OF REWRITABLE RFID)