ROOM SENSOR WITH AUTOMATION

END SEMESTER PROJECT

SUBCODE: MEC102

SUB NAME: INTRODUCTION TO ENGINEERING DESIGN

Submitted by,

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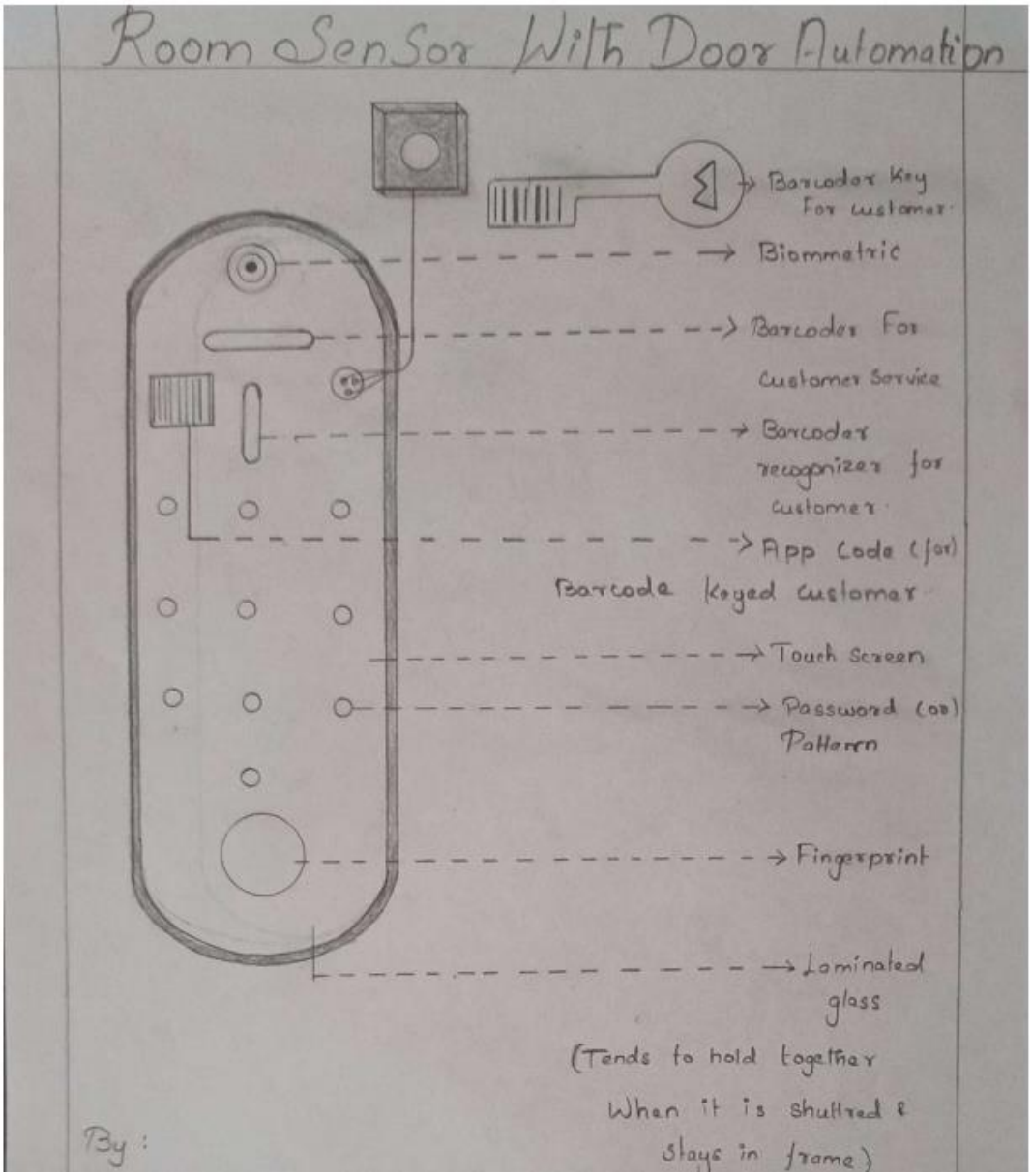
OUTLOOK OF OUR DESIGN:



NEED:

A device to close the door in the absence of people to ensure safety.

REQUIREMENTS:

1) Biometric lock

2) Sensors (motion sensors, temperature sensors, pressure sensors)

3) Connectors

OBJECTIVE:

1) To automatically close the door, using sensor

2) To avoid stranger entry

3) Ensuring safety

4) Controlling by means of remote

FUNCTIONS:

1) To sense the human presence

2) To lock the door when no one is present

3) Using both biometrics and manual to open and lock

SUB FUNCTIONS:

1) If temperature sensor is used, change in body temperature is noticed

2) To avoid overheating of device

3) Efficient speed of process

4) Touch screen is given where password or pattern can be given

5) It is waterproof therefore it won't rust

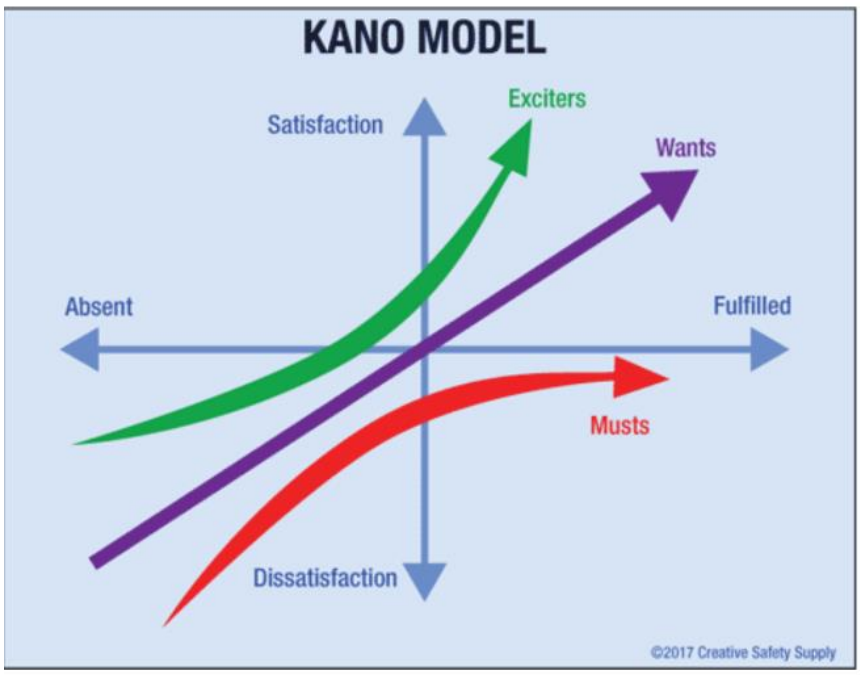
MORPHOLOGICAL CHART:

Functions	Means	M1	M2	M3
F1	To sense human presence	Passive Infrared (PIR) sensor	Temperature sensor	
F2	To be waterproof	Glass coating	Sealing open space	
F3	To be durable material	Thermoplastic	Metallic covering	Wooden covering
F4	To lock	Biometrics	Touch screen	Biometrics, touch screen and manual keys/barcodes.

CONSTRAINTS:

1) It should not occupy more space and power
2) It should not over heat
3) Should be water proof and non-flammable
4) Material should be durable
5) Device should be adaptable to updated version.

KANO-MODEL OF QUALITY:



MUST:

1) Room sensing and automation of closing door

2) Overheat protection

3) Smart keypads

WANTS:

1) Waterproof protection

2) Battery or electric supply.

EXCITEMENT:

1) key shaped barcode

2) App & Alarm

DECISION MATRIX USING SCREENING METHOD:

SELECTION CRITERIA	ROOM SENSING	USING LOCK WITH BIOMETRICS, TOUCH SCREEN & MANUAL	CONNECTING BOTH AND TRANSFERRING SIGNALS
EASE OF HANDLING	+	+	+
EASE OF USE	+	+	+
PORTABILITY	+	+	+
MANUFACTURING EASE	+	+	+

- From the above matrix it is shown that the concepts can be implemented easily.

USER SPECIFICATIONS:

F1-M1

F2-M1

F3-M1

F4-M3

- ❖ The above given set of functions and means is the best choice and satisfies the user as per requirements.

BRIEF ABOUT CONCEPT DESIGN:

- ➢ Our concept design helps in the automation of closing doors when the user forget by sensing the room every 5 minutes for human presence. When it is locked, it can be opened using key/password or using biometrics