Engineering Design

Device to convert normal vessel to induction base vessels.

Rithish.R-125015093
S.Ramkumar-125050083
T.Jushwanth-125009084
Section-'M1'

Problem Faced By The User:

Whenever the fueloline runs out, we need to prepare dinner dinner the usage of induction range however now no longer all of the vessels are induction primarily based totally additionally if the fueloline runs out at some stage in cooking, then we need to transfer it to every other induction base vessel to maintain cooking which makes the paintings double the time and effort.

Need Statement:

The answer is to facilitate a system to transform the bottom of non-induction base vessels to induction primarily based totally in order that the vessel may be transferred from range to induction easily.

Requirement:

- To convert non induction base vessel to induction base vessel.
- Handle the device easily.
- Should be transportable and handy.

Constraints:

- To discover a fabric and wiring that withstands a lot heat.
- To make the bottom induction kind the usage of a small and clean machine

Objective:

To offer an modern layout strategy to alternate the bottom of vessel to induction kind without problems to present clean get entry to to induction cooking.

Purpose Of Solution:

To fulfil the person necessities at a minimum price price range and now no longer to compromise at the excellent of the product.

Target Specification:

1. Performance Specification:

The product must be small sufficient to connect it to a vessel to boil water and the system must face up to the heat..
The dimensions are 30cmx15cmx10cm.

2. Perspective Specifications:

PARAMETERS	DESCRIPTION
Shape	cuboidal
Material Used	Stainless Steel
Colour	Light colours
Weight	50g

3. Procedural Specification:

Durable, Stable, Easy to handle and detachable.

Functions To Be Fulfilled:

- Stable and long life

- Heat resistant
- Easily portable
- Detachable

Innovative Features:

- Is struck to the vessel via way of means of magnetic enchantment of stainless steel.
- Has a small hollow thru which the induction base will pop out and cowl the bottom of vessel.
- Sensor to experience the cease of the vessel to make the induction base to curl to cowl the bottom.
- Mobile manipulate enabled thru app.
- Button to retrace the bottom and pull it again in the machine.
- LED display to go into dimensions of the bottom of car to mildew the iron base for induction compatibility.
- Copper wires and booths are used to behavior warmth and hold the molten iron withinside the equal state.

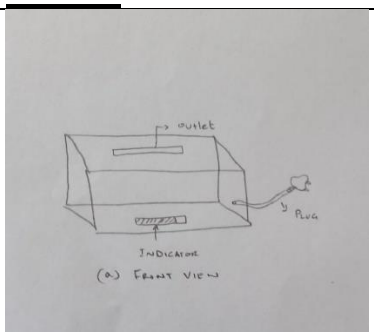
- A short settle down gadget to chill and solidify the molten iron as a plate to cowl the bottom of vessel

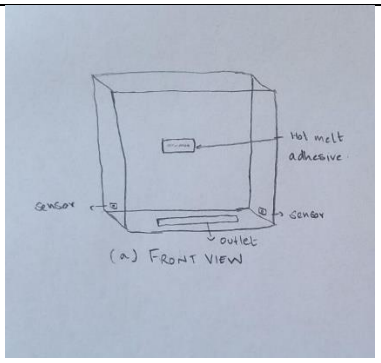
Morphological Chart:

Function	Means 1	Means 2	Means 3
To Store the iron induction base	Use a small pocket to store the iron in molten state.	Use a fair amount of space in the machine to store a plate that can expand and shrink.	Use a machine that stores molten iron at high temperatures.
To sense the end of vessel	No censor, the machine should be placed above 6 cm above the base of vessel	A sensor is used to sense the end of vessel and curve the plate at the end of vessel.	No sensor required as it is not fitted to the vessel.
To keep the iron in molten state.	Copper wires are used and high volt electricity is made to pass through it so that the copper reaches the	No need to keep iron in molten state.	A copper cup is placed inside to maintain high temperature and high electricity is

	melting point of iron.		made to pass through it.
To stick the device to the vessel.	A magnet is placed on the device and the current flowing through it will create a magnetic field strong enough to fix it to the vessel.	Hot melt adhesive is used to stick the device to the vessel.	No need to attach the device to vessel.

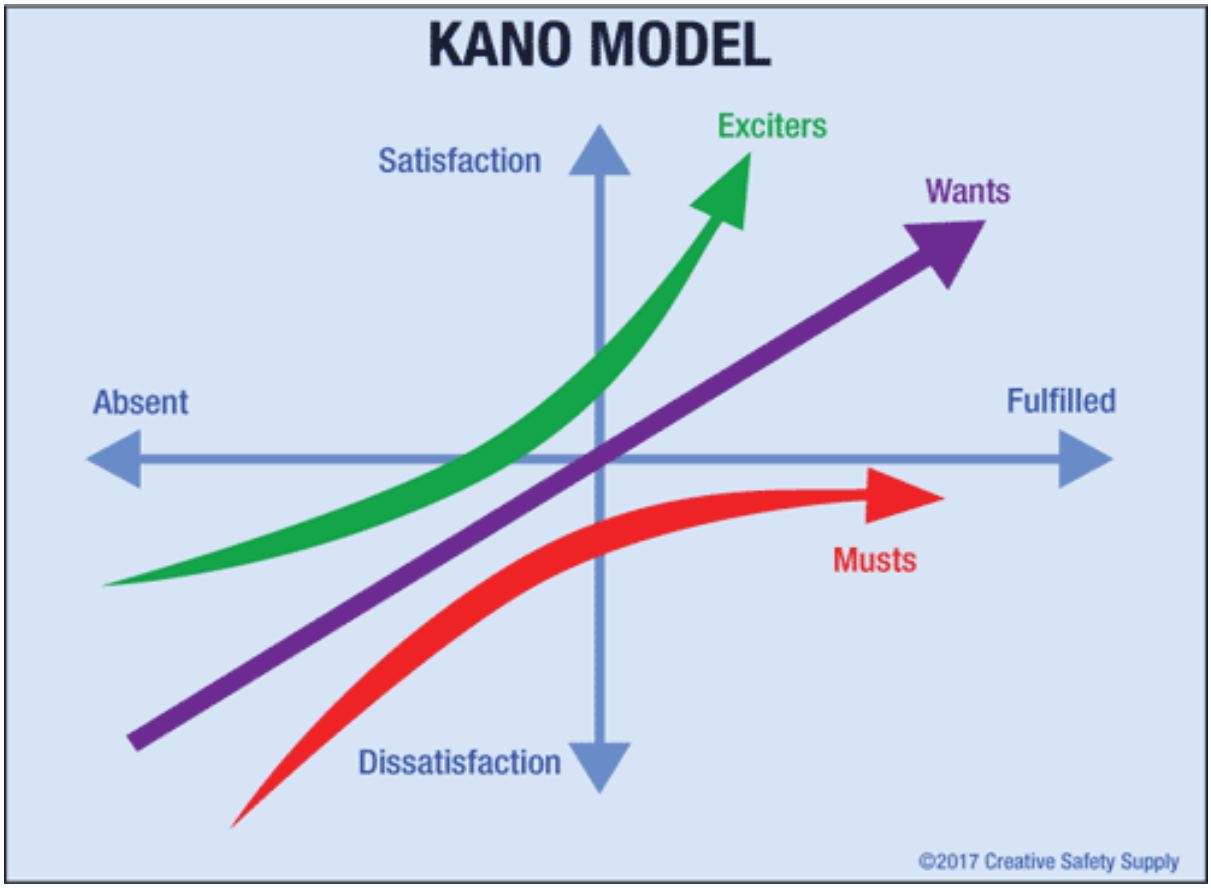
Multiple Conceptual Solutions:

Model	Photo	Description
Model-I		Cuboidal fashioned tool made with chrome steel and a magnet is located at the lower back to paste it to the vessel, a small room is there to keep molten iron that solidifies while it comes out

		and acts as base, the device must be located approximately 6 cm above the bottom for green use.
Model -II		Cube fashioned tool made from chrome steel however large in length to keep plates and has an built in sensor to experience the give up of vessel to bend to get correct base to fit, it's miles struck to the vessel base because of vacuum suction, warm soften

		adhesive is used to paste the tool to vessel, cellular app may be used to control.

Comparing using KANO model:



Musts:

Basic needs are musts, absence of this leads to dissatisfaction.

Wants:

Explicit needs are wants.

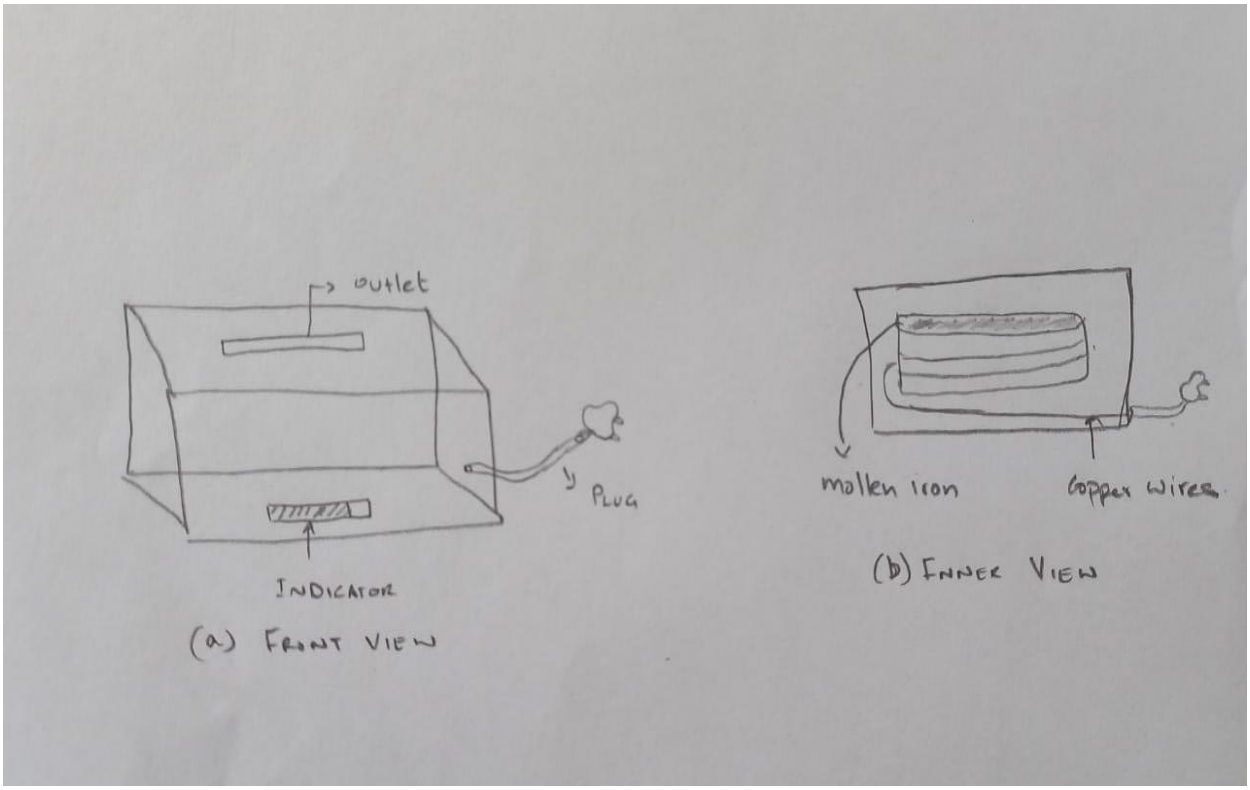
Exciters:

Fulfilling the unexpected desire are exciters.

Model-I:

- Made of stainless-steel because of low warmness conductivity.
- Should be related to ac plug usually as to byskip the contemporary via copper wires with excessive resistance to growth the warmth to hold molten iron in that state.
- Device to be positioned above 6 cm from the bottom in order that the iron solidifies as a base and persist with it permanently.
- Small room is made to hold the molten iron in the device.

• After the molten iron inner is used up absolutely a demonstration can be proven and must be refilled.



Model-II:

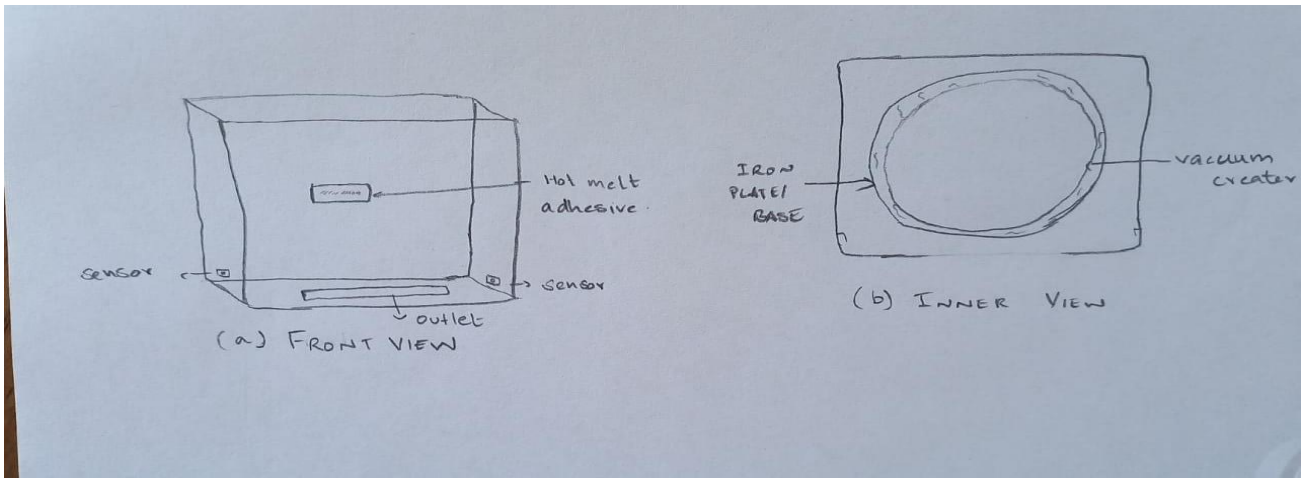
• Made of stainless steel.

• Cubical in shape.

• A room to hold a big base which may be increased or contracted in line with the scale of the bottom.

• A sensor is gift withinside the gadget to discover the quit of the bottom and bend the plate to cowl the lowest.

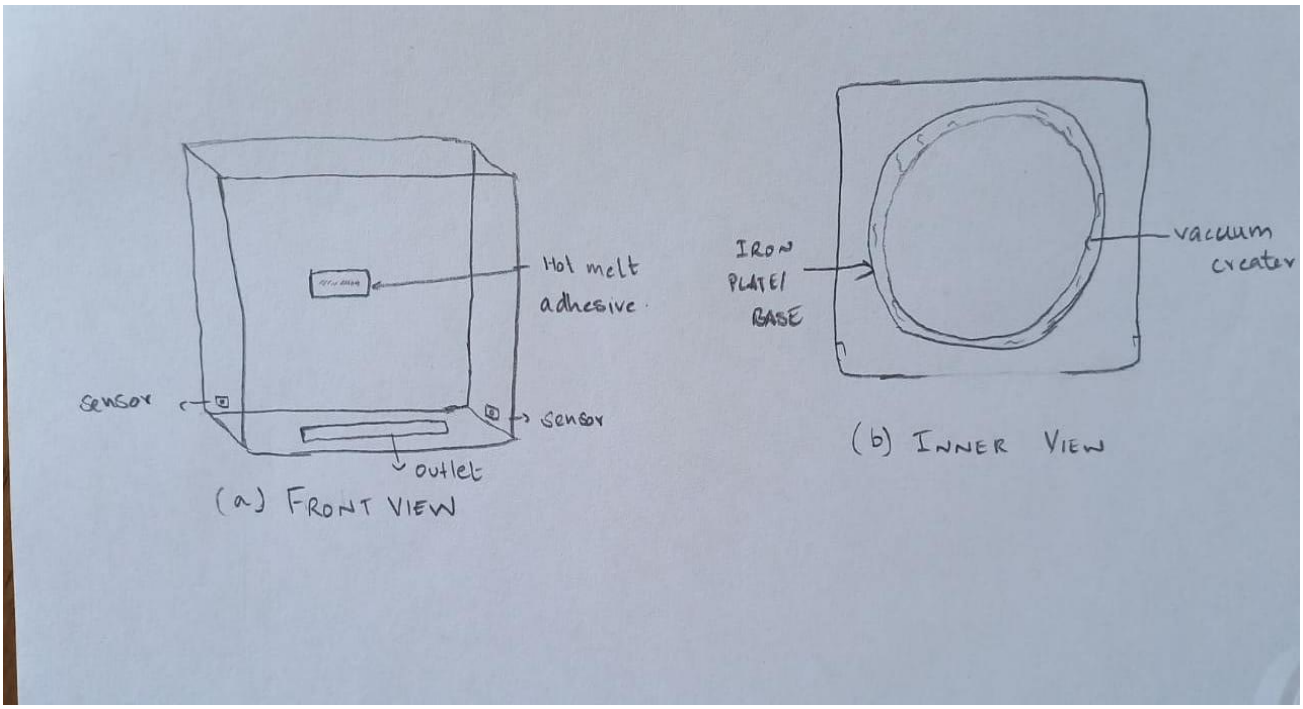
- Another sensor is positioned on the opposite aspect to test whether or not the plate over crossed the lowest of vessel or it ended earlier than masking the vessel and in line with that sensor the plate will decrease or expand.
- Hot soften adhesive is connected to the returned in order that every time the tool desires to be vicinity can simply be stored on the floor of the vessel and after enough warmth the new soften adhesive will soften and persist with the floor.
- Button to retrace the plate and shop it withinside the tool.



Best Conceptual Solution:

Comparing the fashions all of the fashions fulfill the simple wishes of consumer and additionally has a few greater features, however version-II has an additional gain

of getting pleasure features ,this version has the very best score. So version-II is the green and quality tool out of the 3 proposed fashions and this could be price really well worth because the equal plate may be reused once more and once more. It additionally has a cell app to be managed with and a assurance of five years. This layout answer is the quality to hold round and use every time there may be a vessel that can't be utilized in induction-pinnacle cooking.



Thank you..