

ADIABATIC RAPID CO – COMPOSTER



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Embedded Cell

Introduction

The public awareness for disposing of wastes and make public places clean is being rapidly decreasing day by day, the technologies that have been helping to contribute to this field is gathering the interest of scientists and researchers. People are looking forward to more effective and less expensive methods. Which can be made available to everyone. Smart and innovative ideas have many applications in technology. The adiabatic process has paved the way for disposing of the waste product to a usable product. Adiabatic Rapid co Composter is one of the most promising prototypes having its various applications in the agricultural field. It stands for rapidly composting the wastes by the adiabatic process. It is used in the composting of organic wastes in industries, flower and vegetable markets, restaurants, and homes. The advantage of this product is its compact size and time consuming to compost organic waste. And this paper is proposed to convey the future aspects of agriculture-based technologies and its versatile applications in the agriculture and waste management field.



TOTAL WASTE GENERATED PER YEAR

220990202664

KILOGRAM

WASTE MANAGEMENT STATUS



SECURED WAY

COMPOSTING == 10%

INCINERATION == 05%



UNSECURED WAY

OPEN DUMPING == 60%

UNSANITARY == 15%

LANDFILLING

OTHERS == 10%

WASTES THAT CAN BE CONVERTED



KITCHEN WASTE

- VEGETABLE WASTES
- FRUIT WASTES
- FOOD WASTES
- PAPER/WOOD/CLOTH



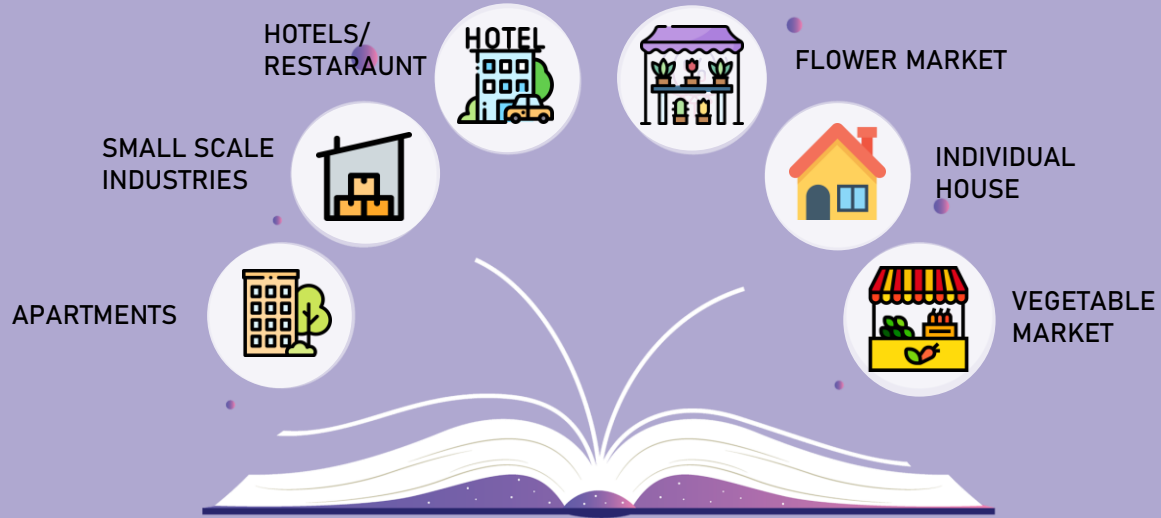
AGRO WASTE

- DRY LEAVES
- LAWN CLIPPINGS
- GRASS RESIDUES
- PLANT RESIDUES
- BUSHES
- BROWN RESIDUES



INDUSTRY WASTE

- SLUDGES
- FAECAL SLUDGES



TARGET MARKET

UNIQUE FEATURES



Internet of
Things



Suitable
Microbial
Consortium



Automation



Physico Chemical
Parameters



Rapid and
Compact

ADVANTAGES



PROMOTES
FARMING



PROMOTES LAWN
GARDENING



AUTOMATIC FEED
SELECTION



REDUCE
TRANSPORTATION COST



PROMOTES TERRACE
GARDENING



AVOIDS OVERFLOW AND
OPEN DUMPING

FACTORS AFFECTING THE PRODUCT



TEMPERATURE



CARBON AND NITROGEN
COMPONENTS



P-H CONTENT



PARTICLE SIZE



HUMIDITY



MICRO ORGANISMS



MOISTURE CONTENT



MATERIALS USED

XL – SIZE VESSEL



THIS XL SIZE VESSEL IS USED FOR THE PROTECTION OF THE COMPONENTS



WE WILL FIX ALL THE COMPONENTS INSIDE IT



WE COME UP WITH STAINLESS STEEL DUE TO THE PROPERTIES WHICH IS ALMOST RELATIVE TO THE CONCEPT USED IN THIS PROJECT



CONCEPT : STAINLESS STEEL WILL KEEP THE HEAT INSIDE IT AND IT ALSO NOT RELEASE THE HEAT OUTSIDE OF IT

L – SIZE VESSEL



IN THIS VESSEL WE ARE GOING TO DRILL 3 HOLES IN THE LEFT AND RIGHT SIDE OF THE VESSEL FOR INSERTING THE CONNECTING WIRES TO THE SENSORS



WE ALSO CUT THE BASEMENT PART OF THE VESSEL AND WE ARE GOING TO WELD IT WITH L SIZE PLATE

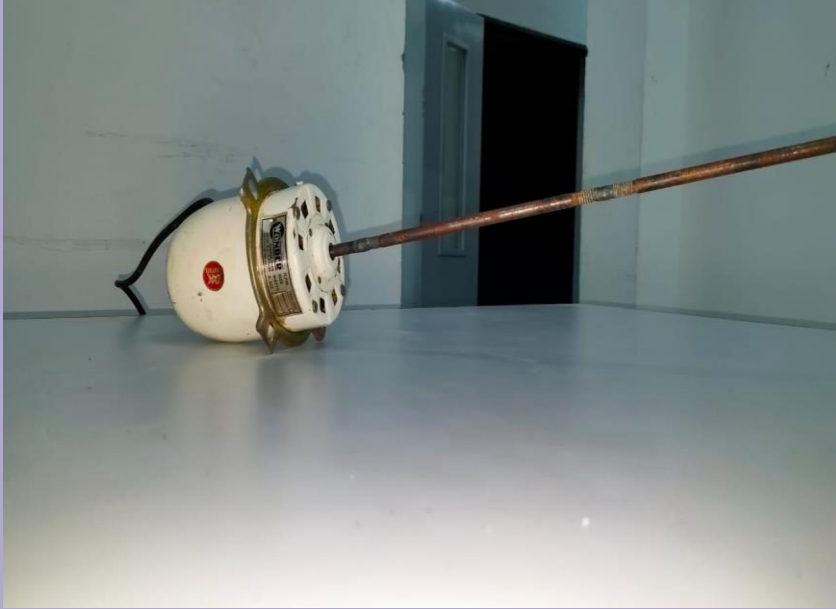


IN THIS VESSEL ONLY WE ARE GOING TO FIX THE HUMIDITY AND TEMPERATURE SENSORS



THIS VESSEL ALSO MADE UP OF STAINLESS STEEL

MINI FAN MOTOR



MINI FAN MOTOR IS USED TO MIX THE MATERIALS THAT CAN BE POURED INSIDE THE VESSEL



IT IS USED TO MIX THE MATERIAL EVENLY WHAT WE POUR INSIDE IN THE VESSEL



THE BLADES SHOULD BE FIXED WHILE MIXING THE MATERIAL

PLATES



XL-SIZE PLATE



L-SIZE PLATE



XL SIZE PLATE IS USED ONLY TO COVER THE TOP OF THE PRODUCT AND TO FIX THE MOTOR WITH IT BY MAKING HOLE IN THE CENTRE



L SIZE PLATE IS FIXED WITH L SIZE VESSEL WITH 6 HOLES IN IT



HOLES ARE MADE TO COLLECT THE WATER WHICH WILL BE FORMED DURING THE RUNNING PROCESS

CLAMP AND OUTLET PIPE



1 INCH CLAMP



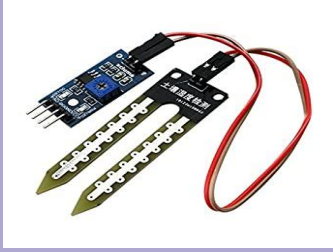
1 INCH CLAMPS ARE USED TO FIX THE XL SIZE VESSEL WITH THE PLATE MEANS TO CLOSE THE VESSEL

OUTLET PIPE

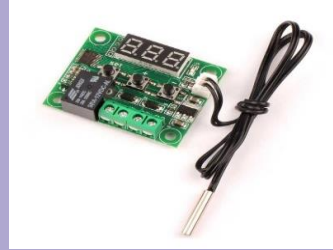


OUTLET PIPE IS PLACED IN THE BOTTOM OF THE XL VESSEL TO REMOVE THE WATER FROM THE VESSEL

SENSORS



HUMIDITY SENSOR IS USED TO MEASURE THE HUMIDITY CONTENT OF THE MATTER PRESENT INSIDE IN IT

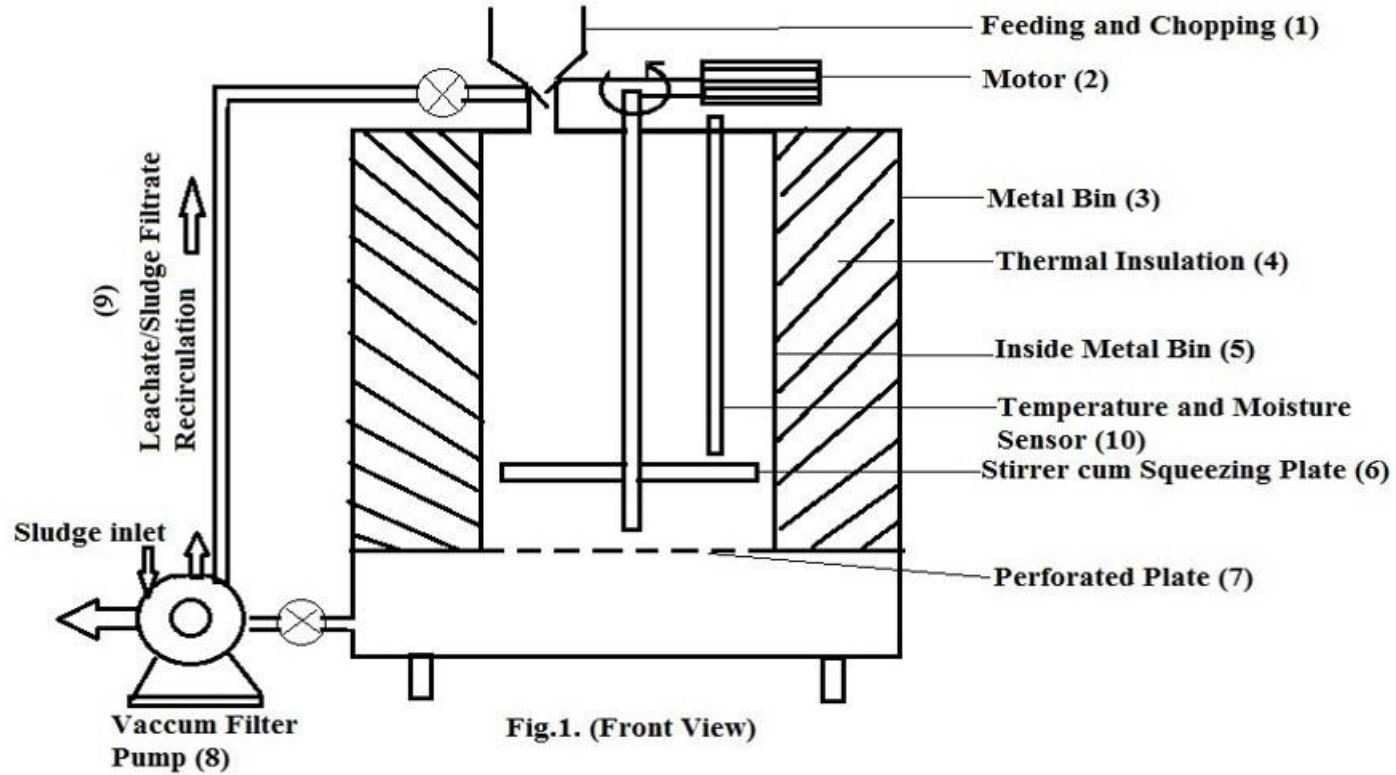


TEMPERATURE SENSOR IS USED TO MEASURE THE TEMPERATURE TO MAINTAIN CONSTANT TEMPERATURE INSIDE THE VESSEL



ARDUINO UNO BOARD IS USED TO PROGRAM THE BOTH SENSORS AND TO INTERFACE THE DISPLAY WITH IT

LAYOUT



LAYOUT

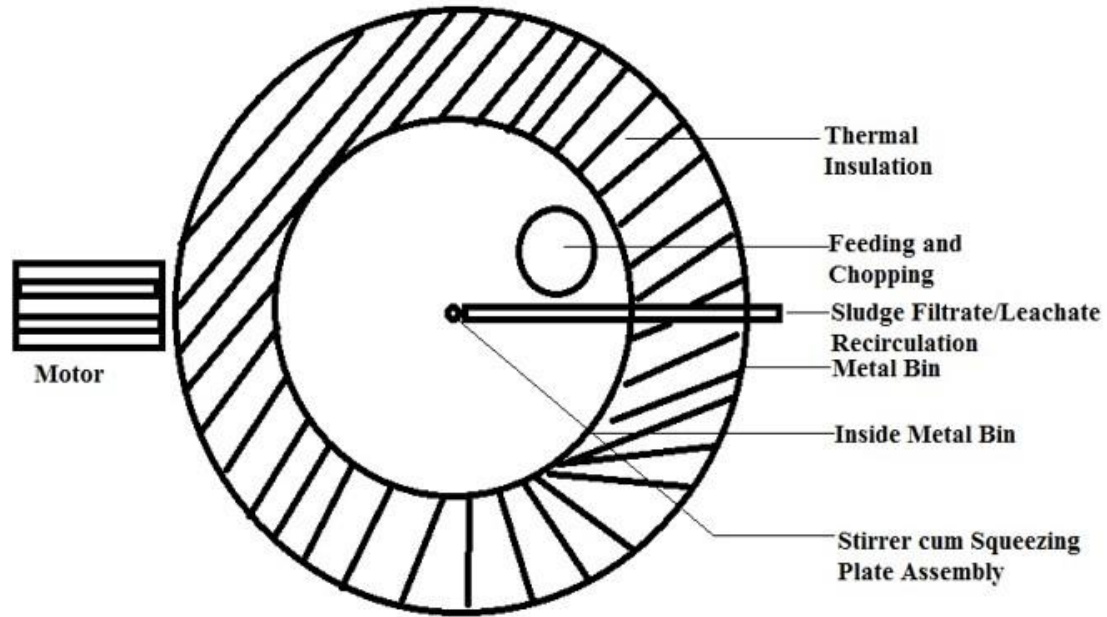


Fig.3. Top View

MENTORS

RAMESHWARI R
KALIMUTHU M
BALAGANESH P
VASUDEVAN M

TEAM

HIRTHICK GUHAN EK
RANJITH D
GOPALAKRISHNAN V
MOORTHY C



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