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Design and Fabrication of Rodents Capture Unit

Dr. T. Varunkumar¹, M. Lingesh², S. Nithya Priya², J. Rockyappan², S. Sahana²

Associate Professor & Head of the Department, Department of Mechanical Engineering, P.A College of Engineering
and Technology, Pollachi, Tamil Nadu, India ¹

Students, Department of Mechanical Engineering, P.A College of Engineering and Technology, Pollachi,
Tamil Nadu, India²

ABSTRACT: The abstract of this project was to create a product or solution to compact mouse capture unit for the house. The product has the ability to capture the rodent, ensuring removal of the rodent and more efficient mouse control. The research for this project includes looking at and analyzing what traps are currently on the market, interviews with experts within the field, field work together with pest control technicians. In addition, I have looked at research conducted on the humane execution of rodents. The result is mechanical rodents trap for outdoors and indoors use which ensures with as little suffering as possible. All the mechanics are enclosed to make it easier to handle and at the same time making the trap safe to use around pets and kids.

KEYWORDS: new rodent capture unit design

I. INTRODUCTION

The three most encyclopedically common species of rodents are the brown rat(Rats Norwegians), the black rat(Rattus), and the common house mouse(Mus musculus). The brown rat is the focus of this paper, it's the most common rat species. Fungicides and the problems using a rat bane is mentioned in the preface. The use of bane has been a common way of combating rodents since the first appeared on the request in the 1940s. And it's still to this day a common system among the professionals as well as in husbandry and in the private request. The way that they work is that they stop the blood from jelling and after a sufficient quantum have been digested the bane will beget internal bleeding in the beast. The bane generally comes in the shape of a wax block to adulterate the chemicals and make it easier to handle. It isn't hard to see why it's popular, compared to setting traps you can more or less forget about it and refill the bane every formerly in a while. In addition to being accessible the cost is relatively low. But there's a different price to pay. Studies have shown that the bane finds its way into the ecosystem. Since rat bane typically takes some time to accumulate in the body of rodents they can come the prey of catcalls, pussycats and other creatures that frequently hunt rats and mice. Another issue that comes with the slow working bane is that when the rat ultimately becomes ill, it'll seek out the safety of its nest which in civic areas frequently is within our structures. This is a big problem for homeowners since a dead rat inside the wall can produce an unsupportable reek it's generally hard to pinpoint exactly where in the wall that the decaying rodent is so in any cases you have to open up a whole wall just to get relieve of the body and in some cases also replace soiled sequestration accoutrements. Still, the fungicide operation is affect other species also. It isn't a safe system around faves and kiddies. Trap medium is used to capture the rodent fluently. It has smaller downsides than fungicides.

II. PROBLEM IDENTIFICATION

Many traps already exist for trapping rats and mice. However, most of these are designed to kill or capture smaller, more passive animals. By contrast, this project requires a trap specifically for capturing rats. Moreover, the preexisting traps have unique characteristics which may be useful to our specific case.

III. CONCEPT

Generally variable rat trap available in request. Assaying colorful being model and problem identification, we made a result of landing rodents in a inoffensive way. In vindicating the effectiveness of the design, an original evidence of conception prototype was constructed. This prototype was gauged- down model using 4" PVC for the body and 3/4" PVC for the cover. The model was used to determine the ideal door shape and check the introductory functionality of

the door- holding medium. Also, it was used to test the continuity of the cement and the ease of the construction styles. As result of these tests, the design of the door and the door holder was meliorated, but no major changes were made. Additionally, adding another PVC with elbow joint having revolver to cover more as possible.

IV. MATERIAL SELECTION

Materials available in the market like wood, steel cages and pesticides have several drawbacks as well. In the pursuit of harmless materials, choose PVC pipe as a component. This pvc pipe is strong enough to capture rodents, and it is easy to handle. PVC pipes are used as trapping devices to capture the rodent. It has a smooth interior design and a wide range of availability. Figures 1 and 2 show the PVC pipe and its elbow joint. Figure 3 shows the special type of revolving door done by 3D design.



Figure 1: PVC Pipe



Figure 2: elbow joint



Figure 3: revolver

COMPONENTS	SPECIFICATION
PVC pipe-2 no's	4 inch
Elbow joint	4 inch fit
Small pipe	0.5 inch
Revolver door	3.8 inch
Connecting rod	0.1 inch

Table 1: specification

V.DESIGNING PROCESS

The revolver door, elbow a joint, inside tube, rod, hinge, main tube, and door make up the device's seven components. When glue construction is used, no threaded fasteners are used. The inner tiny tube, the revolver door, the elbow joint, and the rod slide are all essential parts. You can change the bait through the elimination of the end cap. The SolidWorks modeling program is used to develop the design.

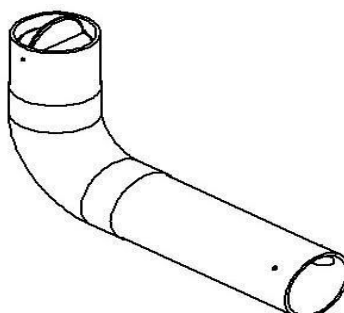


Figure 4: trap design

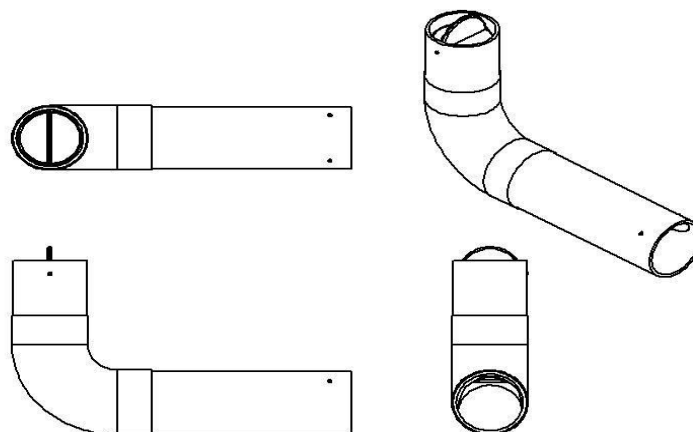


Figure 5: assembled design view in solid works

VI. FABRICATION PROCESS

The trap consists of a 4" main tube with a 0.5" tube glued inside. A rod is placed within a pressure plate and parallel to the trap itself. It is located within the smaller tube on the trap's interior and serves to hold the door up. This means that the trap may be reset simply by turning it. The primary tube is a 2.5-foot-long PVC tube that measures 4" inches. The internal tube is a 3/4"-diameter PVC tube that is bonded within the main tube. This does not need any longitudinal cutting of the PVC or other difficult procedures. The door holes were bored in both the main pipe and the door, and the hinge was cut to length, installed, and bonded to the main tube, allowing the door to easily swing. Because of its form, the door may be opened almost flush with the top but cannot open outwards. The acrylic plate is then pierced with multiple holes, one for the rod and the others to disseminate the bait's scent. The rod is then attached to the plate and inserted into the trap. The opposite end features a 4-inch PVC pipe attached to an elbow junction. The vertical pipe has a revolving door unit that is attached to the pipe's rod via holes. The rotating door is 3.85 inches in diameter and includes a hole in the middle for connecting the pipeline and opening to the rod configuration. The rod must be smaller than the rotating door so that it may revolve freely. Finally, the end is loaded with bait and cap.



Figure 6: fabricated model

VII. FUTURE SCOPE AND ADVANTAGE

This project discusses the future direction of the capture unit for rodents using a convenient method. The discussion includes an overview of problems and gives a handy solution.

Further, this project is being executed for various operations.

Advantage:

- It is portable and has a simple design.
- It is easily available.
- Harmless product
- Multipurpose product

VIII. CONCLUSION

In conclusion, the search results provide information on various types of rodent traps, including glue traps, cage traps, snap traps, and humane traps. These traps are designed to catch and eliminate rodents, which can cause damage to property and spread diseases. The choice of trap depends on the situation and the desired outcome, whether it is to catch rodents alive or to kill them. This project is very useful for capturing rodents in a harmless way.

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