



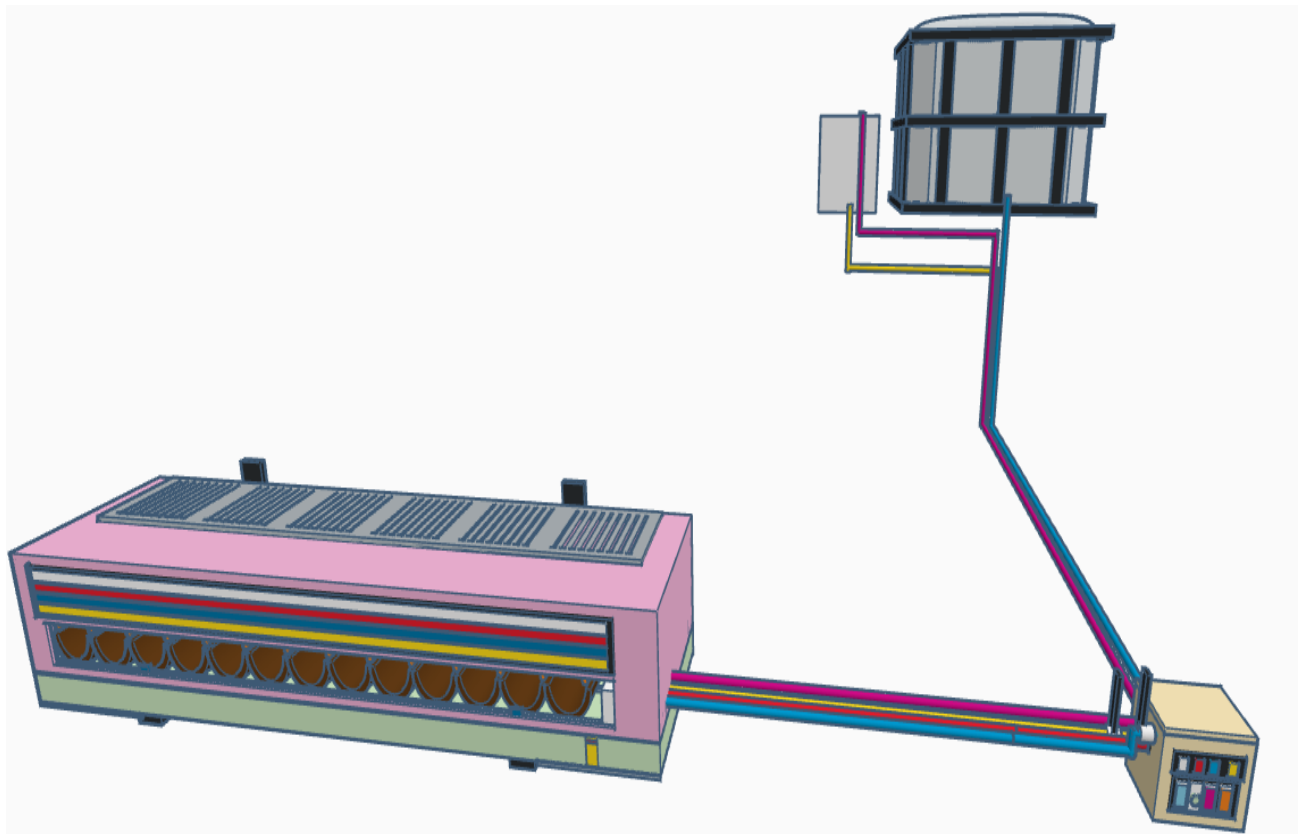
**Government of Puducherry.**  
**Department of Science, Technology and Environment**  
**Puducherry Council for Science and Technology.**  
**Dr. Abdul Kalam Science Centre and Planetarium.**

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**Project Name** : Terracotta Air Cooler  
**Student Name** : H. Muhamedtajdeen  
**Design Number** : 428126-001

**Description:**

This terracotta air cooler is like an evaporative cooling system based on the principle of evaporation. This terracotta air cooler provides cool air in summer season. It also provides purified air. It cools the air by using water and pots. This air cooler is designed for rich and middle class families. By using this air cooler, the percentage of electricity consumption decreases.



**TERRACOTTA AIR COOLER**

## Functionality:

- **Filling the air cooler tank with water:** connect the plug to the plug point. Open the valve in between present in between the water tank to the air cooler tank. Close the valve still the water level reaches the red line in the water level indicator present in the air cooler tank.
- **Cooling the terracotta by using water:** Switch on the drip line pump, the water is converted into droplets and falls on the terracotta and becomes cool.
- **Cooling the air:** Now, switch on the blower switch and control the wind speed with the help of the regulator, the air travels through the terracotta and gets cool because of evaporation.
- **Lights:** Switch on the lights which colour you want (White, Red, Blue, and Yellow)
- **Switch off the air cooler:** First switch of the lights, blower, and drip line pump. Switch on the storage tank switch still the water present in the air cooler tank is completely shifted to the storage tank.
- **Reusing the water present in the storage tank:** Open the valve present in between the storage tank and the air cooler tank. The water returns to the air cooler tank.

## Key Features:

1. Low cost.
2. Does not release Ozone Depleting Substances (ODS), such as Chlofluorocarbons (CFCs) and Hydrofluorocarbons (HFCs).
3. Repairing process is very easy.
4. Easily portable from one place to another.
5. Does not cause any diseases in our body.
6. Converts hot air into cool air by the process of evaporation.
7. Low electricity consumption.
8. It prevents heat exhaustion.
9. It also purifies the air when it contains cap filters.

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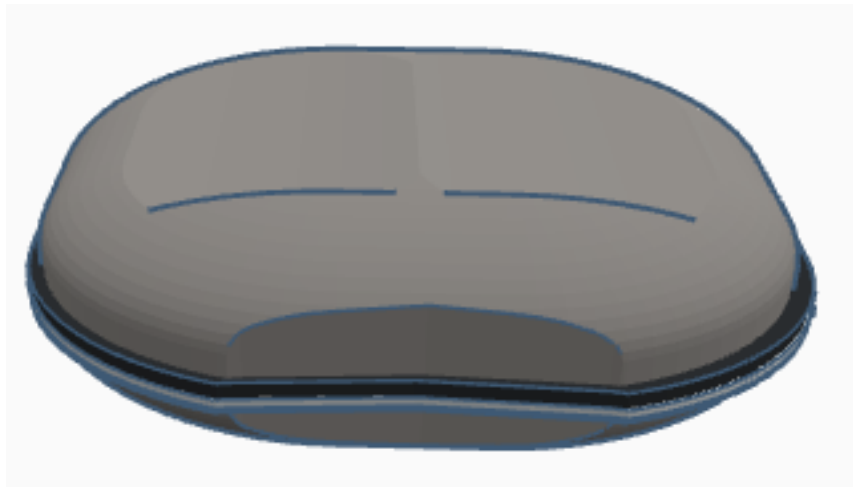
**Government of Puducherry.**  
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**Project Name** : Thermal Reduction Cushion (TRC)  
**Student Name** : M.S.Sanjeev  
**Design Number** : 428128-001

**Description:**

This Thermal Reduction Cushion (TRC) is based on Non-Newtonian fluid which does not follow Newton's law of viscosity that is all fluids flow. This Thermal Reduction Cushion is a replacement of polyurethane foam car cushions which produce heat. But this Thermal Reduction Cushion decrease the amount of producing heat as the Non-Newtonian fluid is oobleck which is combination of water and cornstarch. There are various types of Non-Newtonian fluid. This oobleck is one of the Non-Newtonian fluids that are 'dilatants'. These dilatants are fluids which changes their viscosity with respect to force applied. It acts solid when force is increased and acts like liquid when force is decreased.



**Thermal Reduction Cushion (TRC)**

**Functionality:**

- **Changing of viscosity:** Newton's law of viscosity says that the shear stress is directly proportional to the velocity gradient. But this Non-Newtonian fluid does not follow this law. Dilatants (shear thickening) change their viscosity with respect to the force applied. They get harder when force is applied and gets soft when force is decreased.

- **Fermentation:** As the oobleck is combination of water and cornstarch, it gets ferment by some bacteria. If we want to stop this, we want to add some citric acid in the form of powder.
- **Reducing heat:** As the oobleck contains water, it keeps the fluid cool with respect to its surroundings. The oobleck is poor conductor of heat. So it will not transfer heat to our body.
- **Turning into powder:** After a month, the fluid becomes to turn as powder. On that time we have to add some water to it to get back to its form.

#### **Key Features:**

1. It gives more comfort than polyurethane cushion.
2. Reduce the production of heat.
3. Easy to make it in home.
4. Change its viscosity with respect to the applied force.
5. We can stop fermentation by adding citric acid in the form of powder.
6. Adding citric acid as powder instead of lemon juice will be more effective.
7. Low in cost.
8. We can refill it when needed.
9. Dilatants fluid changes their viscosity better than other Non-Newtonian fluids.

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  <b>INTELLECTUAL PROPERTY INDIA</b><br>PATENTS   DESIGNS   TRADE MARKS<br>GEOGRAPHICAL INDICATIONS                                                                                                                                                                                 |  | <br>भारत सरकार<br>Government of India |  | <b>वैश्विक सम्पत्ति कार्यालय, जांबउ चक्काब, बौद्धिक संपदा दफ्तर, भारत सरकार, वैश्विक सम्पत्ति कार्यालय, जांबउ नगराक, डिज़ाइन एंड रीडुक्शन ऑफ़ थर्मल कर्शियन।</b><br><b>ORIGINAL</b><br>क्रम सं/ Serial No.: 194463 |  |
| <b>डिजाइन सं. / Design No.</b>                                                                                                                                                                                                                                                                                                                                      |  | <b>428128-001</b>                                                                                                      |  | <b>दिनांक / Date</b>                                                                                                                                                                                               |  |
| <b>तारीख / Date</b>                                                                                                                                                                                                                                                                                                                                                 |  | <b>25/08/2024</b>                                                                                                      |  | <b>पासपरिकता तारीख / Reciprocity Date*</b>                                                                                                                                                                         |  |
| <b>देश / Country</b>                                                                                                                                                                                                                                                                                                                                                |  | <b>भारत</b>                                                                                                            |  | <b>प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो THERMAL REDUCTION CUSHION से संबंधित है,</b>                                                                                                         |  |
| <b>प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो THERMAL REDUCTION CUSHION से संबंधित है,</b>                                                                                                                                                                                                                                                          |  | <b>का पंजीकरण, श्रेणी 03-99 में 1.M.S.Sanjeev 2. E.Sivakumar 3.M Mugilarasan के नाम में उपर्युक्त</b>                  |  | <b>संख्या और तारीख में कर लिया गया है।</b>                                                                                                                                                                         |  |
| <p>Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class 03-99 in respect of the application of such design to <b>THERMAL REDUCTION CUSHION</b> in the name of <b>1.M.S.Sanjeev 2. E.Sivakumar 3.M Mugilarasan.</b></p>                                                                    |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.</p>                                                                                                                                                                                                                                                          |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>Date of Issue: 12/03/2025</p>                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>आरी करने की तिथि: 12/03/2025</p>                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>Controller General of Patents, Designs and Trade Marks</p>                                                                                                                                                                                                                                                                                                       |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>*पासपरिकता तारीख (यदि कोई हो) जिसकी अनुमति दी गई है तथा देश का नाम। डिजाइन का स्वत्वधिकार पंजीकरण की तारीख से दस वर्षों के लिए होगा जिसका विस्तार, अधिनियम एवं नियम के निबंधनों के अधीन, पाँच वर्षों की अतिरिक्त अवधि के लिए किया जा सकेगा। इस प्रमाण पत्र का उपयोग विधिक कार्यवाहियों अथवा विदेश में पंजीकरण प्राप्त करने के लिए नहीं हो सकता है।</p>           |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |
| <p>The reciprocity date (if any) which has been allowed and the name of the country. Copyright in the design will subsist for ten years from the date of Registration, and may under the terms of the Act and Rules, be extended for a further period of five years. This Certificate is not for use in legal proceedings or for obtaining registration abroad.</p> |  |                                                                                                                        |  |                                                                                                                                                                                                                    |  |



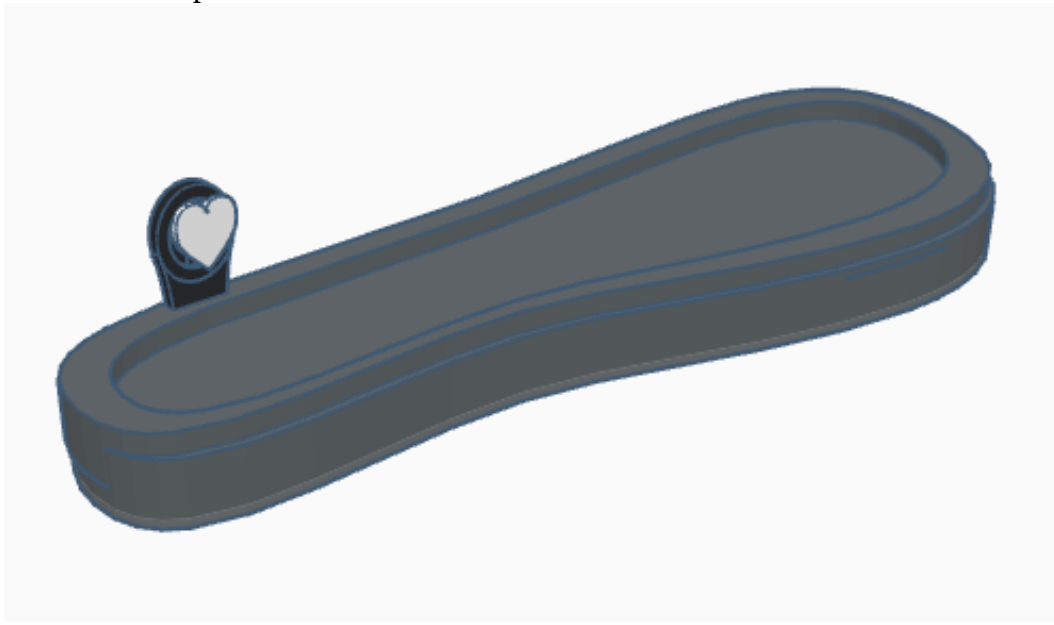
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**Project Name** : An Unconscious detecting shoe sole using Arduino Nano  
**Student Name** : S.Sri Subanesh Mugunthan  
**Design Number** : 428133-001

**Description:**

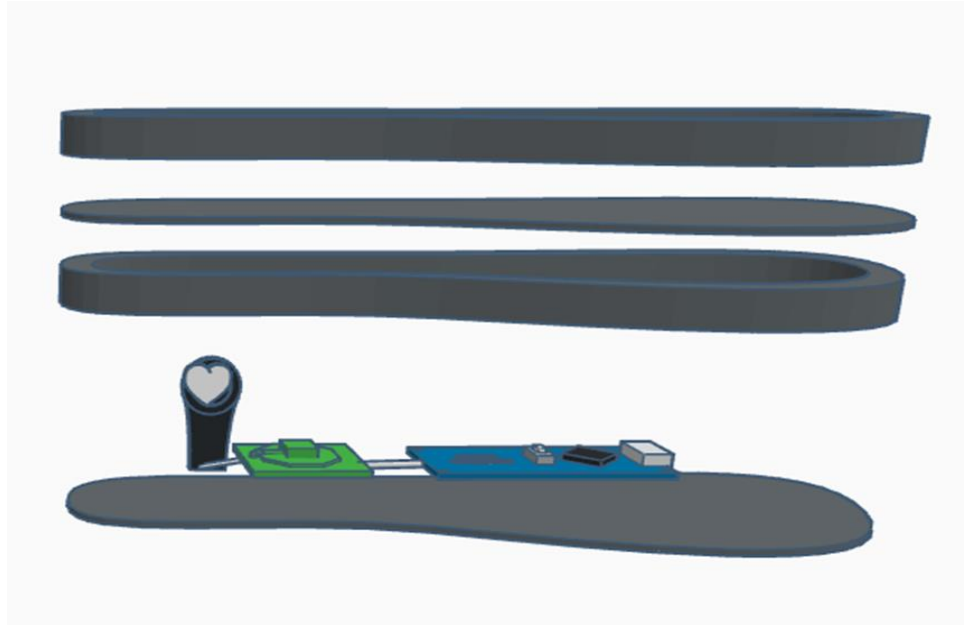
Unconscious is a state of sleep where a person isn't aware of what is happening in the surrounding. So, there is no device to detect unconscious. Here the design is a shoe sole where the device is kept.



**An Unconscious Detecting Shoe Sole Using Arduino Nano**

**Functionality:** The shoe has many parts such as sole, foxing, heel. Toe cap, etc. In that I use the sole to detect unconscious used. To detect Unconscious person's pulse rate will not be normal just it goes down, using Heart beat sensor it detects pulse to detect unconscious and send message to their children or relatives with GPS location .an alarm sound will produce from sole to known that the person is unconscious to the surroundings.

Here Arduino nano will the microcontroller and SUP500F Venus GPS used. AAA 4 batteries give power to operate. SIM800L used to send SMS to relatives. these parts will be inside the shoe sole.



### **An Unconscious Detecting Shoe Sole Using Arduino Nano**

#### **Key Features:**

1. it helps us to make first aid to them.
2. It makes to send location through SMS which can be used to find them.
3. Help them from the serious stage going itself.
4. It is fixed inside shoe which is useful for many.

# Certificate of Registration of Design

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