

Design Course

Clay Animation Module - 2

Making a Wire Armature

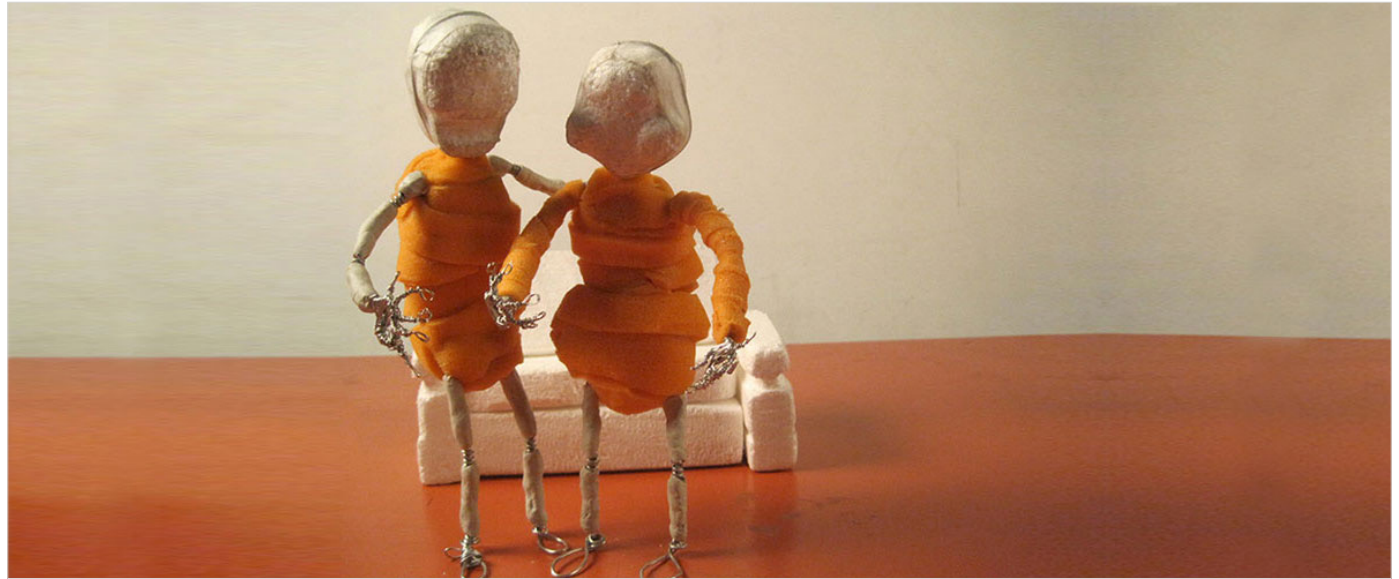
by

Prof. Phani Tetali and Swati Agarwal

IDC, IIT Bombay

Source:

<https://www.dsource.in/course/clay-animation-module-2>



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Introduction

An armature is the skeleton or the basic support for your Claymation character. It helps in holding the character together and allows the animator to move it in small increments for animation.



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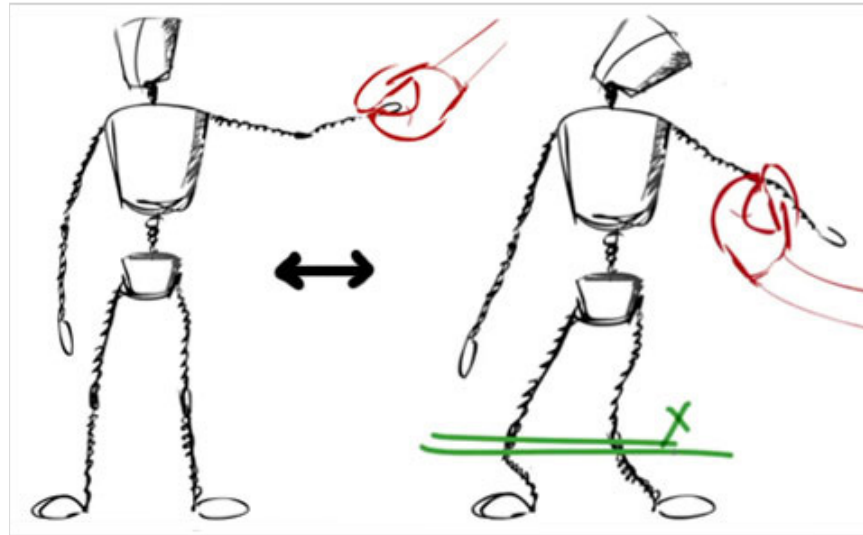
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Basically you just need to keep 3 important points in mind to build a good stop motion armature:

1. Your armature should be as light as possible.
2. If you want to move the arm, only that should move and not the complete armature.



3. In case of big volumes use thermocol or plaster of paris. Use minimum clay. Clay is heavy and makes your model unstable.

Designing a character for stop motion is a little different from a 2d character. Claymation characters need to be physically animated. Hence they need to be light-weight so that they don't fall. Even in a light-weight character the weight has to be distributed such that the character is well balanced.

For example:

It's difficult to manage a character, which has big head and chest and thin legs. Maybe we need to make the upper body extremely light (by using light materials) and feet very strong (strong wire or some heavy material) for balancing it.

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Your design completely depends upon what action your character will be doing in the animation. Accordingly, you can decide how many joints are required in the body.

If you are planning for a long duration film and have the budget you can even buy a ball and socket armature. The armature requires a bit of planning and patience in order to make it correct, but once you know the process it's not difficult at all.

Here, you can see how I have made an armature of a ninja character and a quadruped using an aluminium wire. This method is good for short term projects or for performing experiments. But remember this is not the only method. I am sure you can figure out different ways of making an armature according to your character design.

There isn't any right or wrong when you are constructing a puppet, it's only what works and what doesn't work well. If your armature is properly constructed it'll be fun animating your character. But if it's incorrect or disproportionate, then animation will become difficult.

So make sure your armature is made properly, it's worth the effort.

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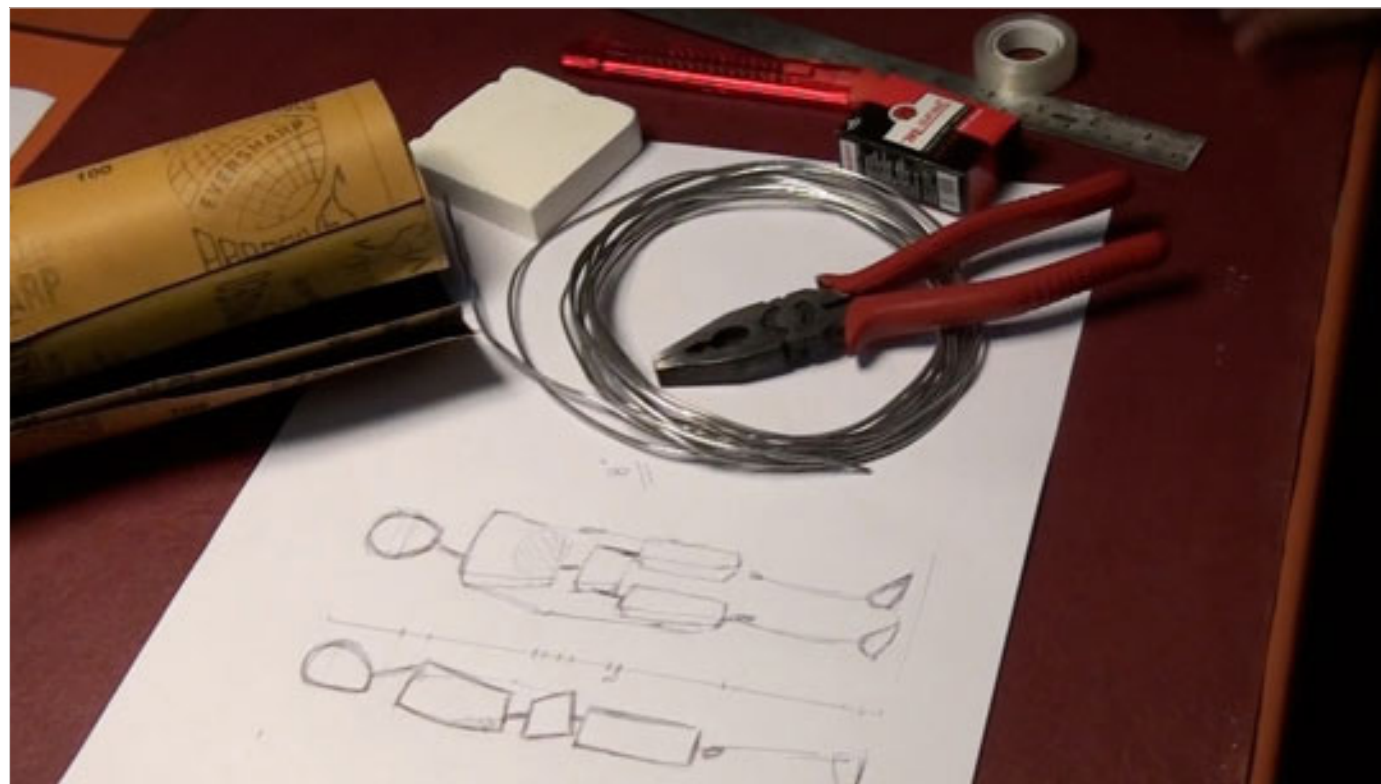
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Materials Required

We'll be using very basic, easily available materials to build our armature.

- Aluminium Wire (3-4 meters long):
1 to 1.5 mm thick for main body and 0.2 mm for fingers. It's not only strong so that it supports the weight of clay, but can be easily bent into any shape and hold its place.
- Plaster of Paris or a high density thermocol
- M-seal
- Sand Paper
- Plier
- Paper Tape
- Cutter



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Process

Two types of armature making process are discussed here:



Human Armature



Process - Quadruped Armature

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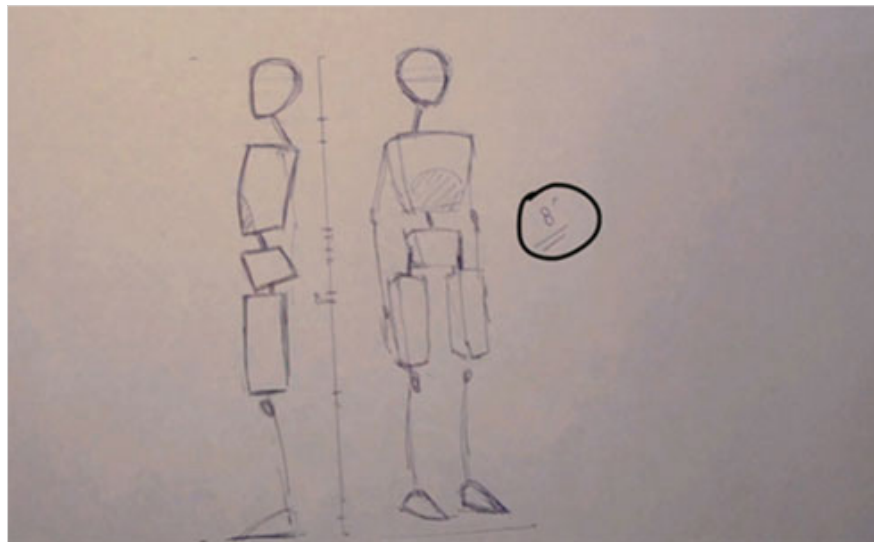
Human Armature

Process for Human Armature:

- Let's look at the drawing of our Ninja character. It can be broken into basic shapes. I have added a shape for thighs also; you may or may not do that according to your character design.



- It's always good to make your character on the same scale as your final model. It acts like a map showing you the direction.



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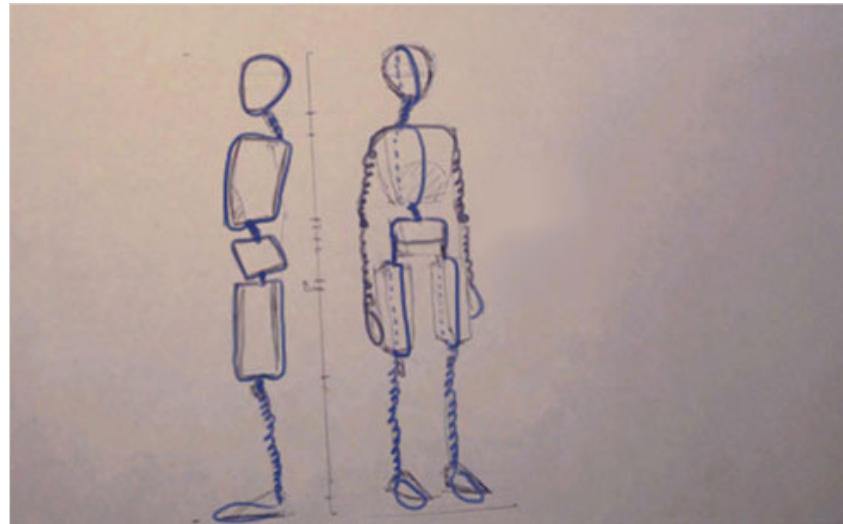
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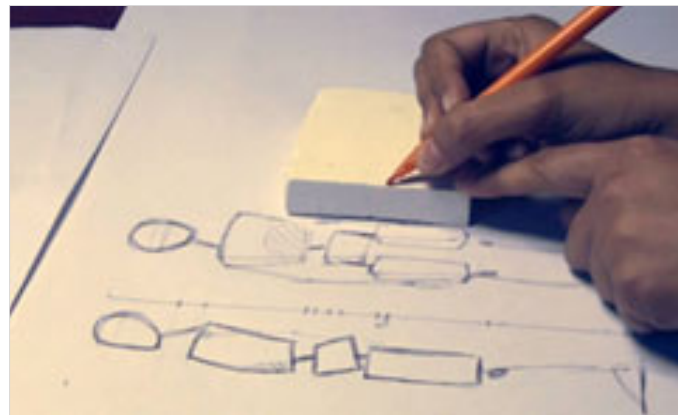
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• This proportion chart will relieve you from many headaches later on during the claymotion stage. At that stage, mistakes made in production become difficult to fix. It becomes easier to check whether the length of arm or leg is correct or not.

• 8 inch is a good size for a puppet to get animated. If it was small than this it would be difficult to animate it. Also, try to make the hands long, animation become easy. • Its better to decide your wire flow on the paper itself. It helps in making up your mind and you will not get lost.



• Start sculpting the basic shapes using plaster of paris or you can also use a high density thermocol.



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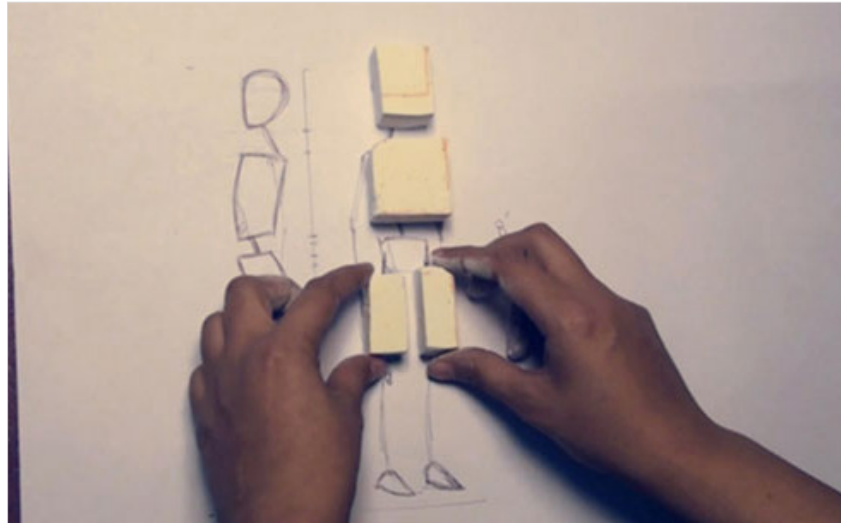
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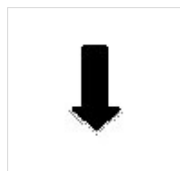
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- Giving them proper shapes using a coarse sandpaper.



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- Carving out the head to mount the eyes.



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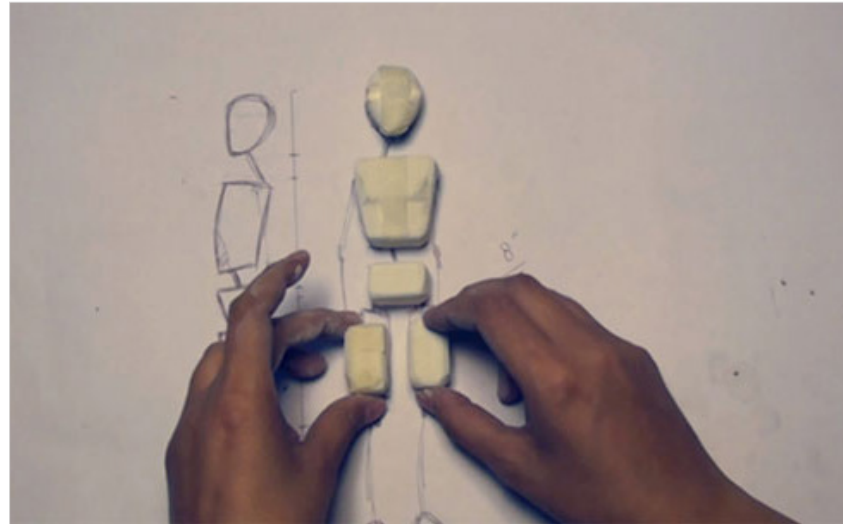
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- Ready with our basic shapes.



- Applying m-seal on the areas where the wire will be wound so that wire may get properly tightened over plaster of paris.
- If you are using thermocol instead of plaster of paris then apply fevicol over your thermocol pieces before using the wire.



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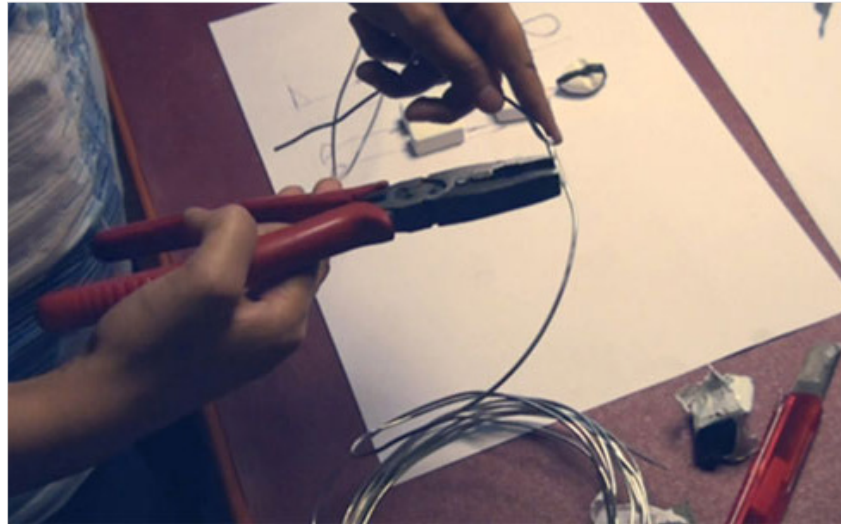
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- Taking around 2-3 meters of aluminium wire of 2mm thickness.



- Starting with the head.



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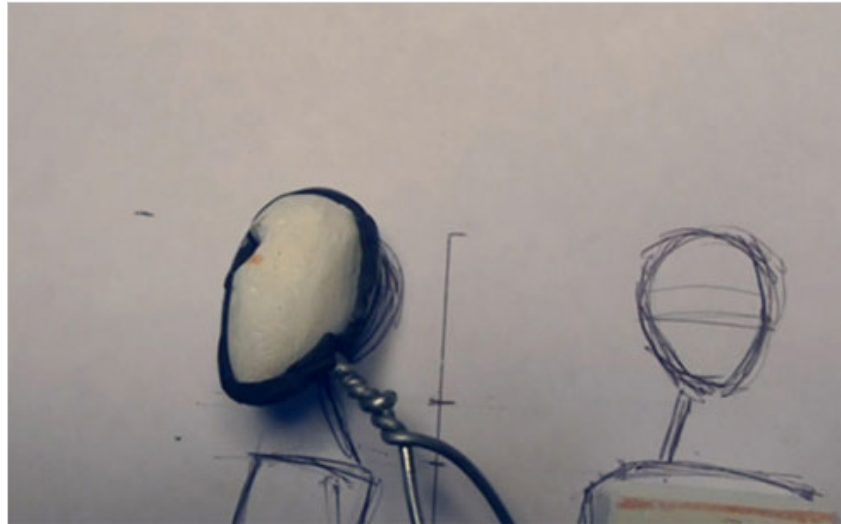
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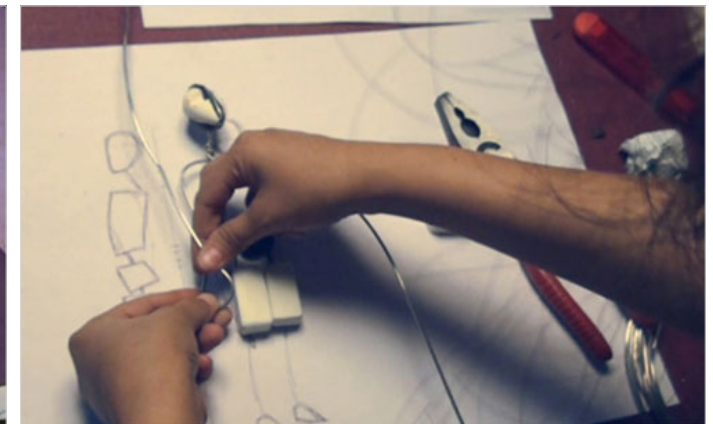
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- Check the length of the neck by keeping your armature on the proportion chart.



- Making the hands.



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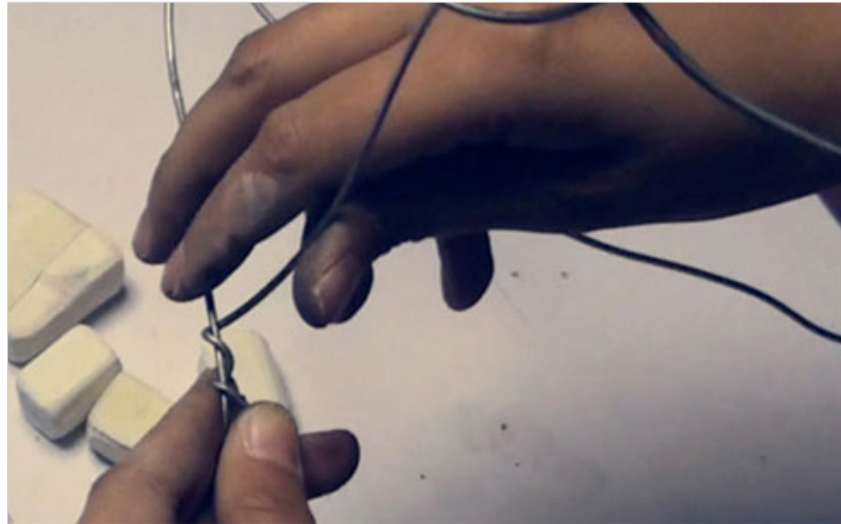
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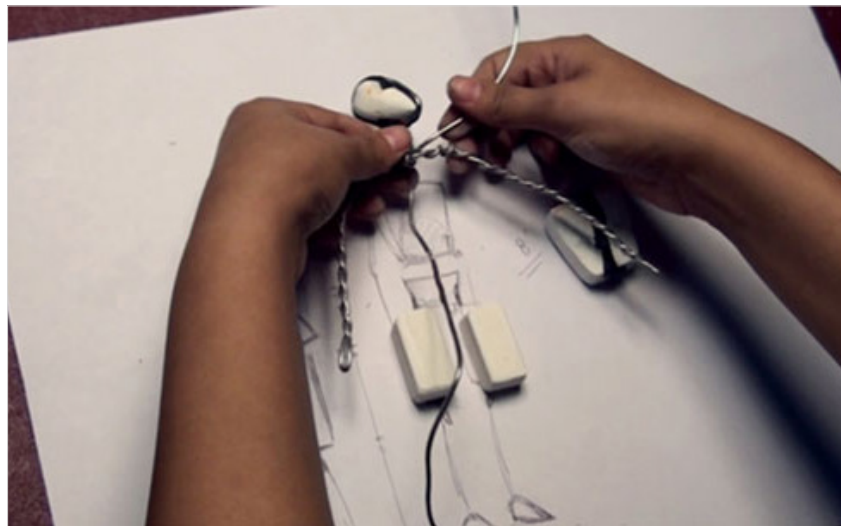
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- While coiling take care that the wires should get properly entangled else your armature won't be that strong.



- Similarly making the other hand.



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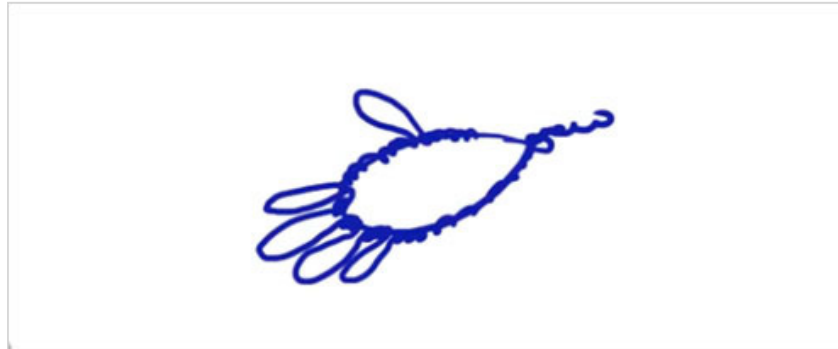
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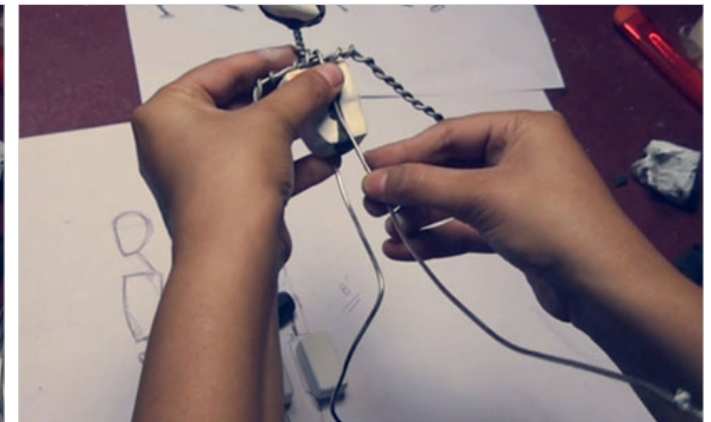
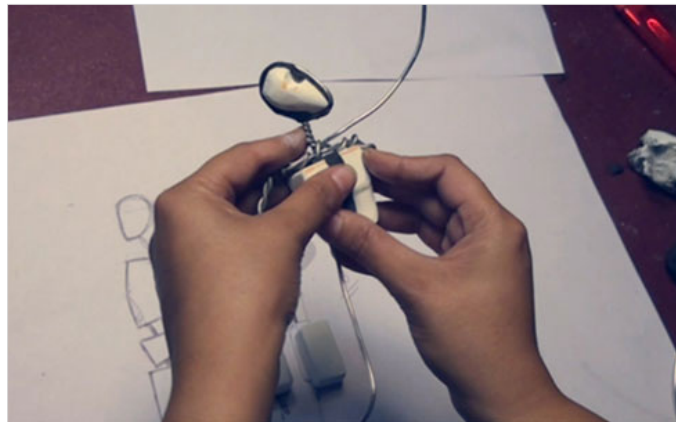
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- I am not making fingers here but if you want to make then use a thin aluminium wire (0.2mm around) so that it can be animated easily.



- Fixing the torso.



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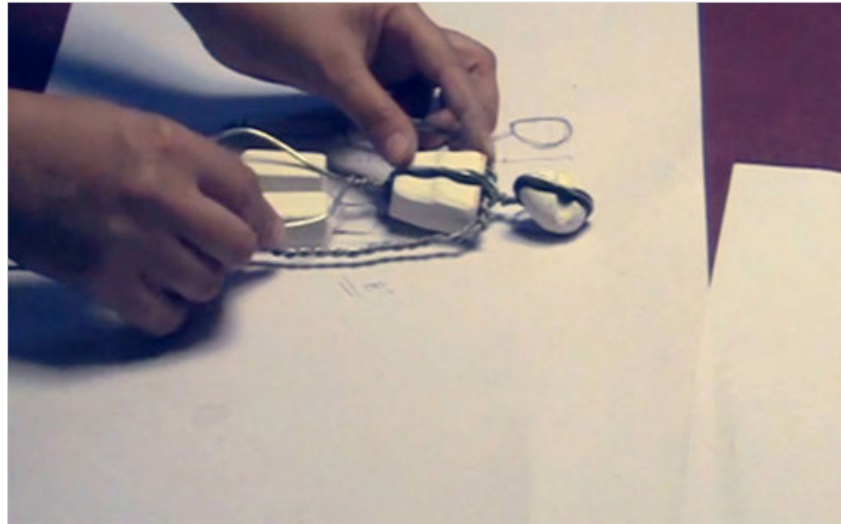
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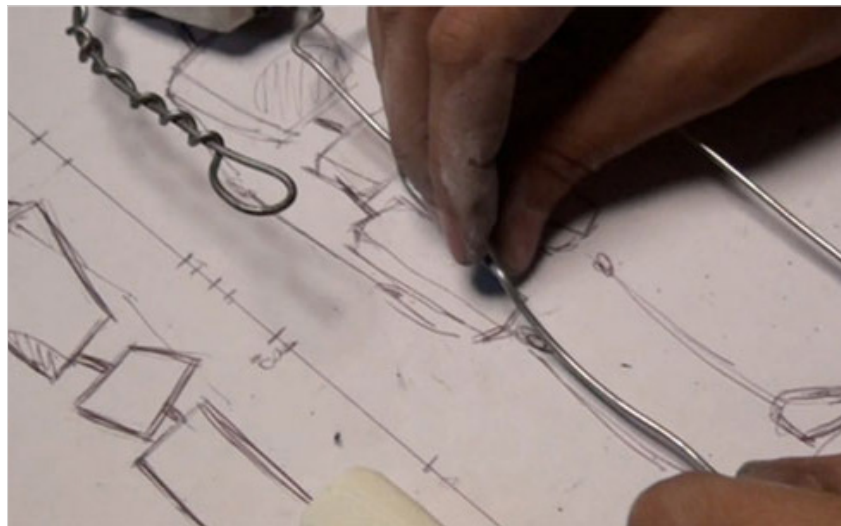
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- Making the legs.



- Taking the length of the leg using the proportion chart.



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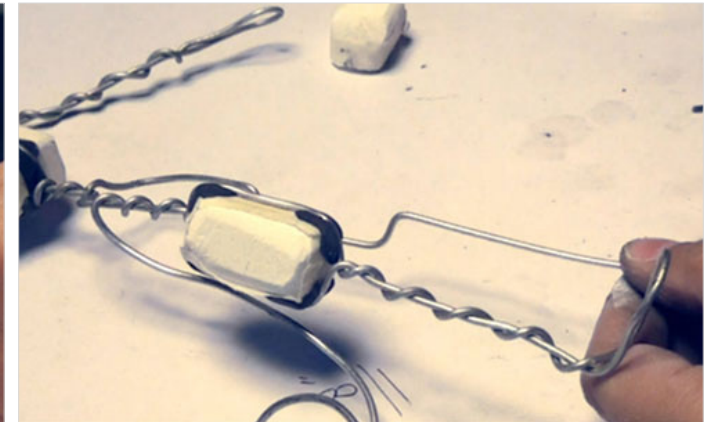
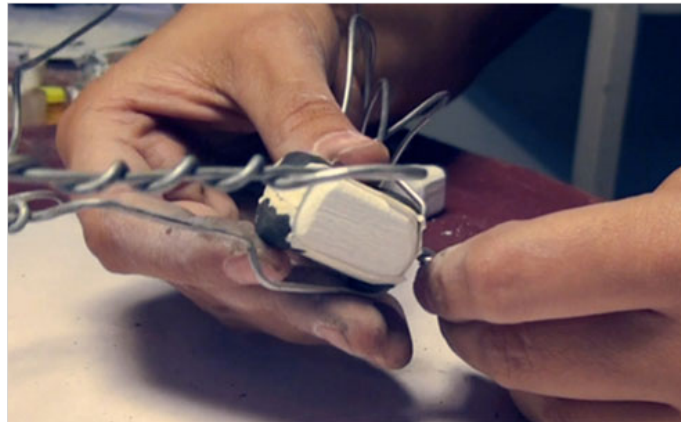
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- Making the feet and coiling the wire upward.



- Fixing the thighs and similarly making the other leg.



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- Tying the final knot below the pelvis.



- Cutting the last unused wire using plier or a wire cutter.



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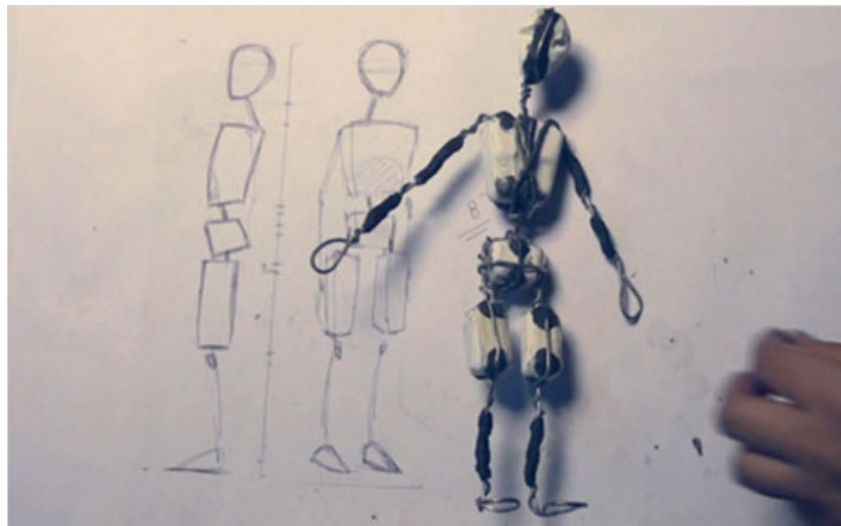
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- Creating bones using m-seal. Leaving the joint area, else the wire may break.



- Here is the final armature.



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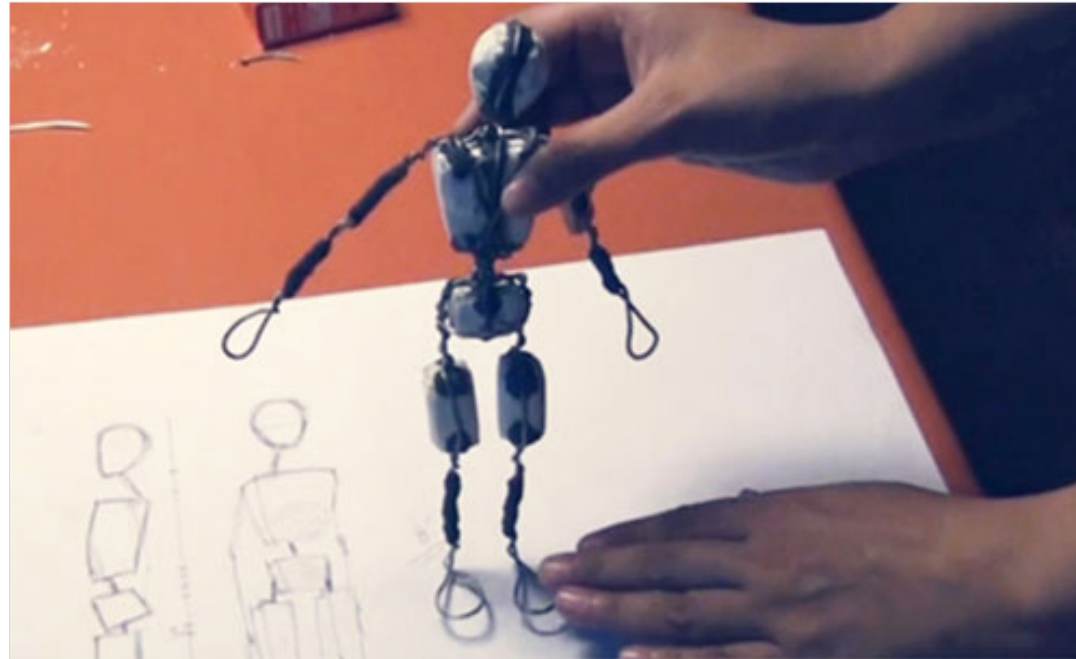
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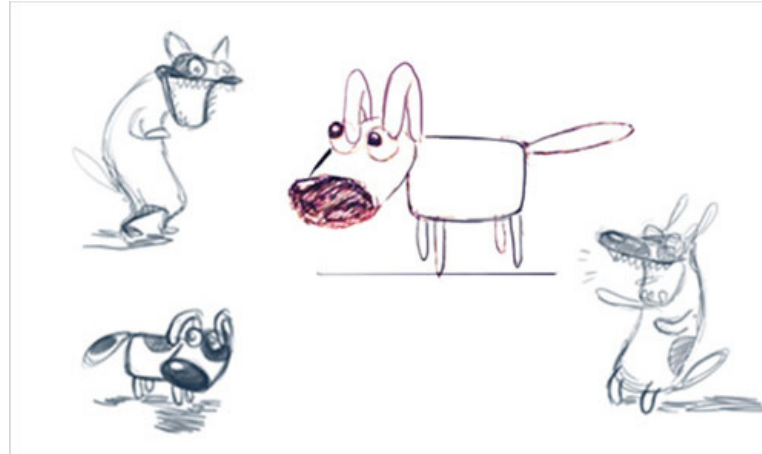
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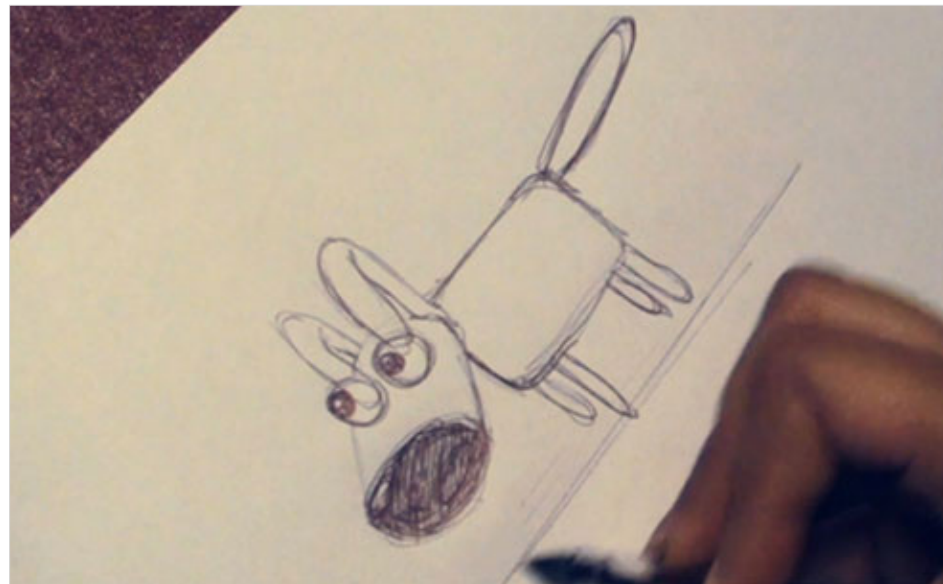
Process - Quadruped Armature

Process for Quadruped Armature:

- First, design your character.



- Make a 1:1 scale model of your character on paper.



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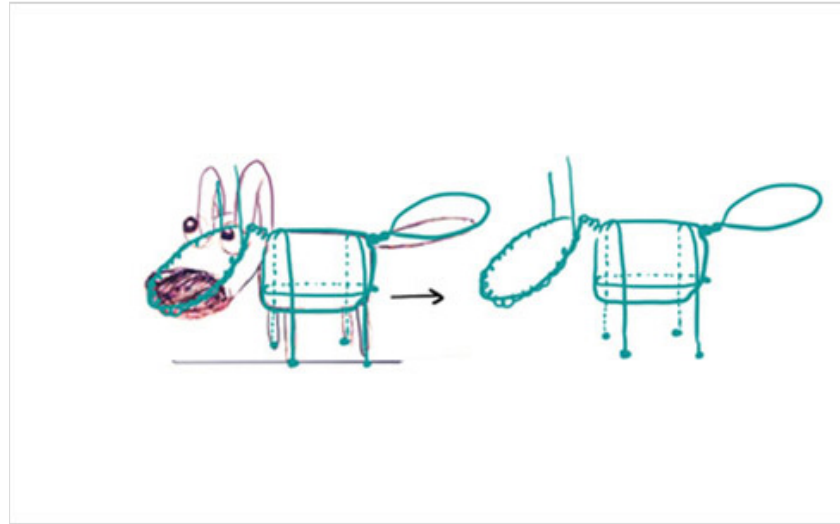
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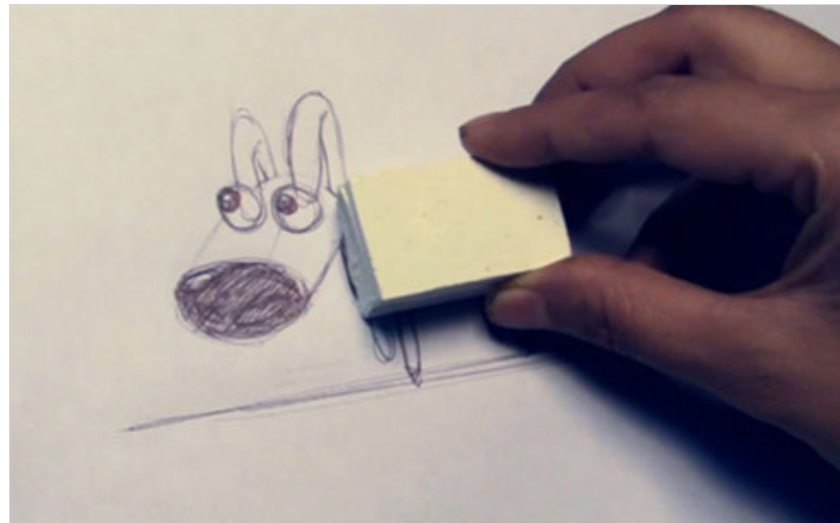
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- Decide its wireflow. Here I'll be using a single wire for the head, body and tail and 2 separate wires for the legs.



- Making big volumes using plaster of paris. Here I have not made one for the face, you may also make one for that according to your character design.



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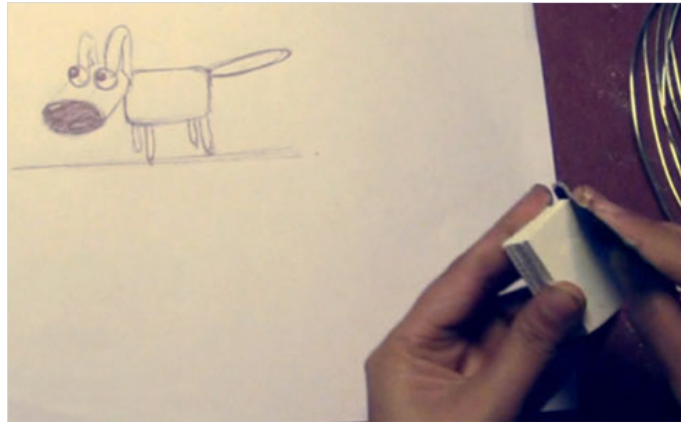
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- Giving a proper shape to your volume using sandpaper.



- Turning the aluminium wire to make the head. A piece of plaster of paris can also be used to give a proper shape to the head.



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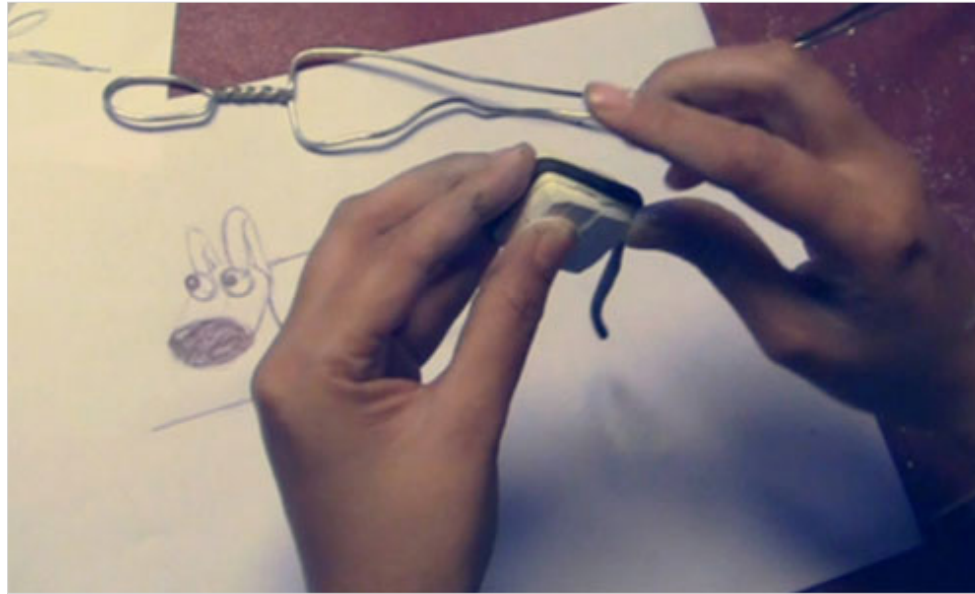
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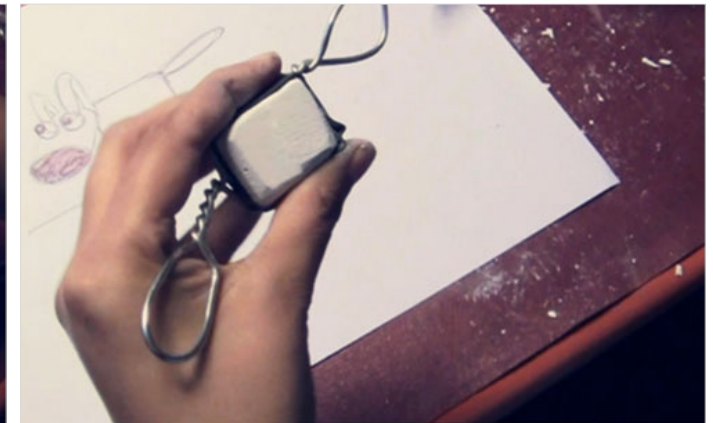
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- Applying m-seal on the body so that wire can be fixed over it.



- Making the tail.



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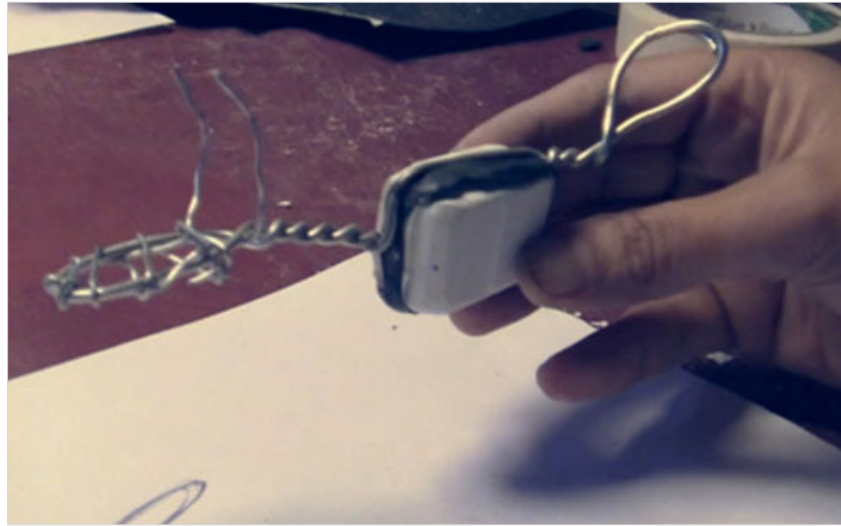
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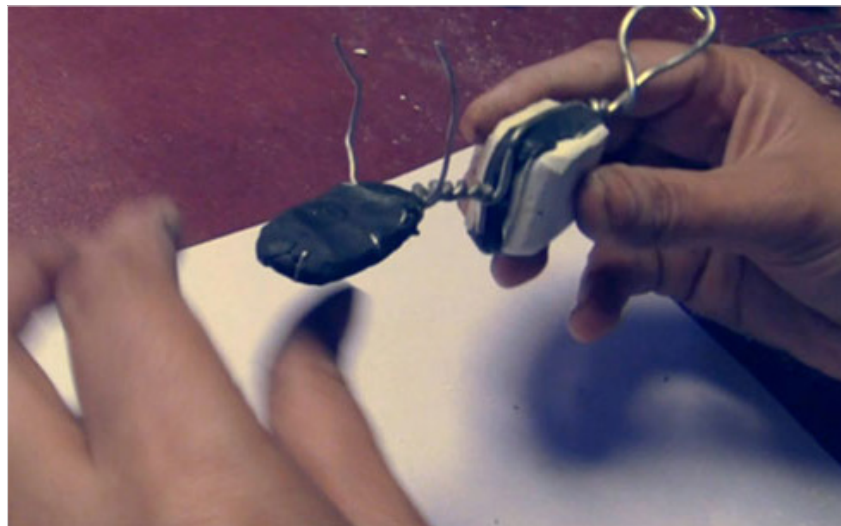
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- Ears made using a thin wire so that they can be easily animated.



- Applied m-seal on the head.



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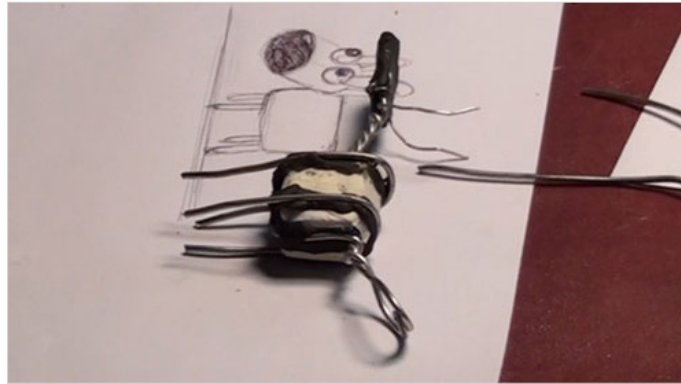
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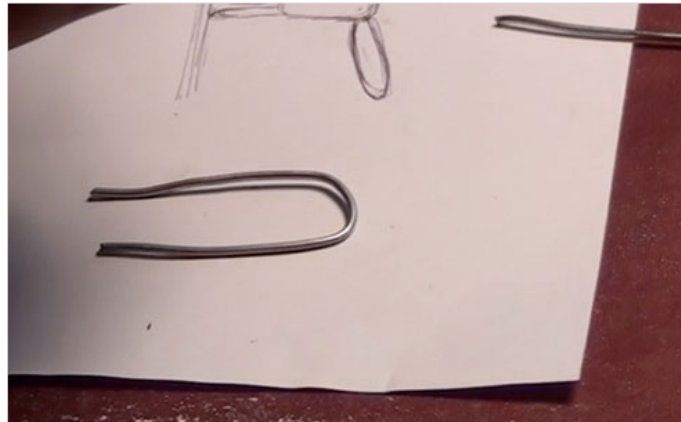
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- Applied m-seal on the body to fix the legs.



- U-shaped wire for the legs.



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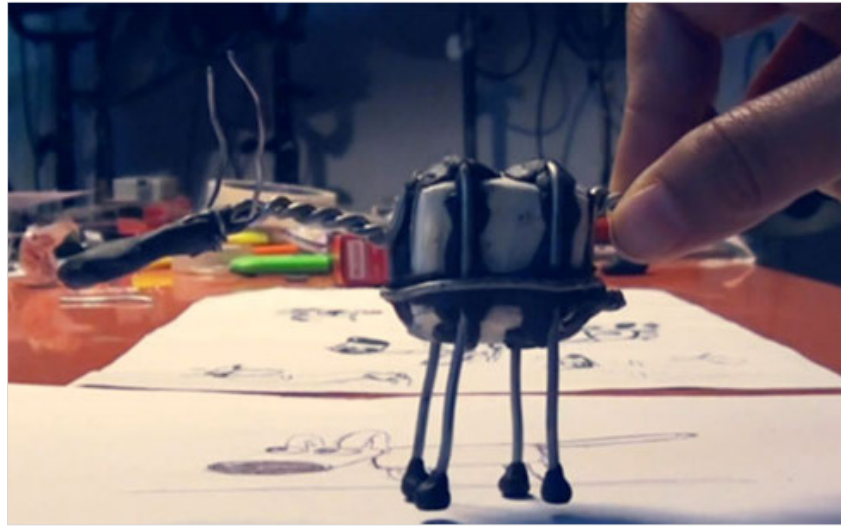
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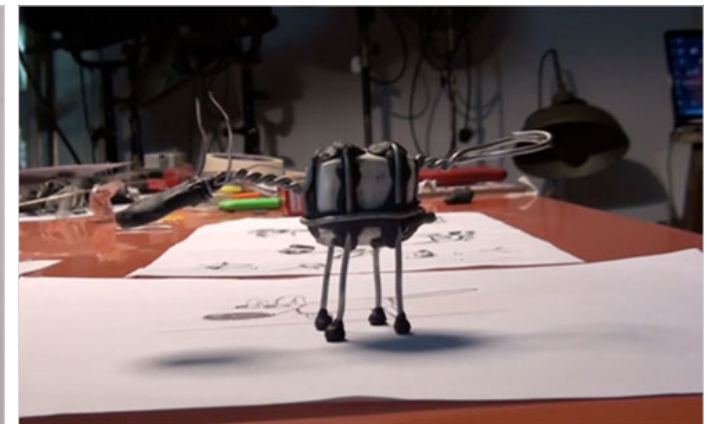
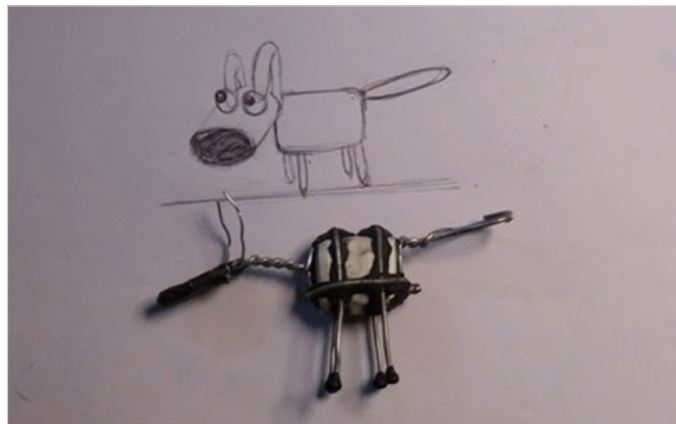
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- Tying the legs.



- And here is the final model.



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Design Course

Clay Animation Module - 2

Making a Wire Armature

by

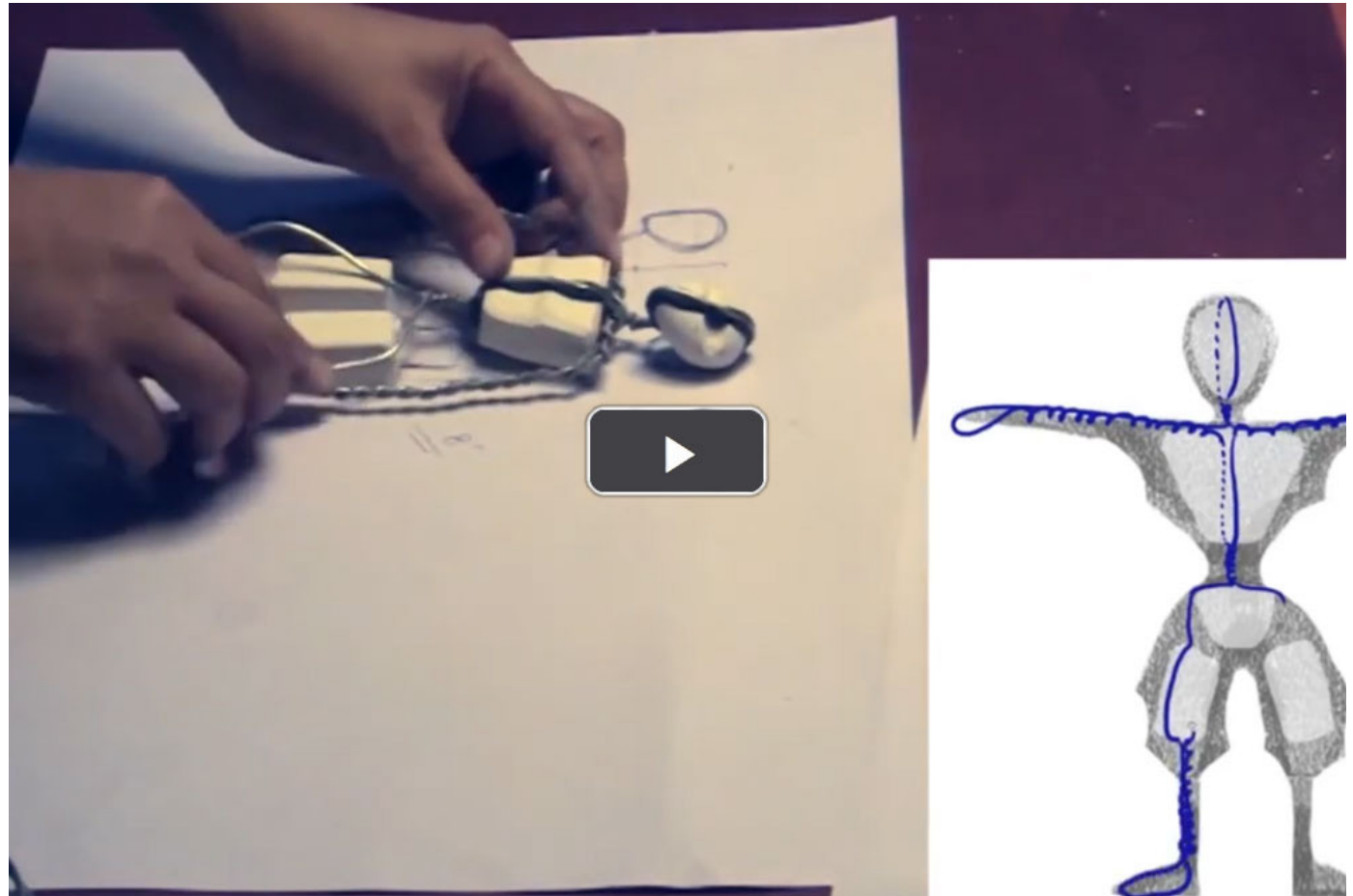
Prof. Phani Tetali and Swati Agarwal

IDC, IIT Bombay

Source:

<https://www.dsource.in/course/clay-animation-module-2/video>

Video



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Examples

Characters developed for an short animated film called 'Gajar ka Halwa':

- Basic Sketches of an old man:



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- Developing the armature using thermocol and aluminium wire.



- Thermocol carved out to animate mouth.



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- After applying m-seal and foam. Foam has been used to give volume to the character.



Also, you can refer to this link for another example:

<http://www.dsource.in/gallery/clay-model-making>

This wire armature is not good for a long duration film as aluminium wire is not that durable and if you're planning to make feature film may be then you need to make several models like this or if you have the budget you can even buy a ball and socket armature.

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Source:

<https://www.dsource.in/course/clay-animation-module-2/exercise>

Exercise

Design the characters written in bold letters below and build their armatures:

'**Barocca**' is a single eyed giant monster, living in the lands of 'Ozza'. When he was 3 years old, an atrocious cat named **Mondala** killed his father who then became Barocca's biggest enemy. Barocca is blessed with a supernatural power; his ears grow bigger when he listens to the sound of thunder which is a sign of Mondala's return to the land of 'Ozza'.

Everyone is afraid of Mondala as her tail produces a kind a smoky chemical, which causes extremely bad itching. No one has ever been able to catch Mondala as she runs extremely fast, at a speed of 199km/hr. Barocca may not be that fast at running as he has short legs but can definitely defeat Mondala with his wit.

PS. : To develop the model sheet of the characters refer to the link below:

<http://www.dsource.in/course/character-design-animation>

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Source:

<https://www.dsource.in/course/clay-animation-module-2/contact-details>

Contact Details

This documentation was done by Swati Agarwal, IDC, IIT Bombay.

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