

RC Hovercraft (2 Propeller Model)

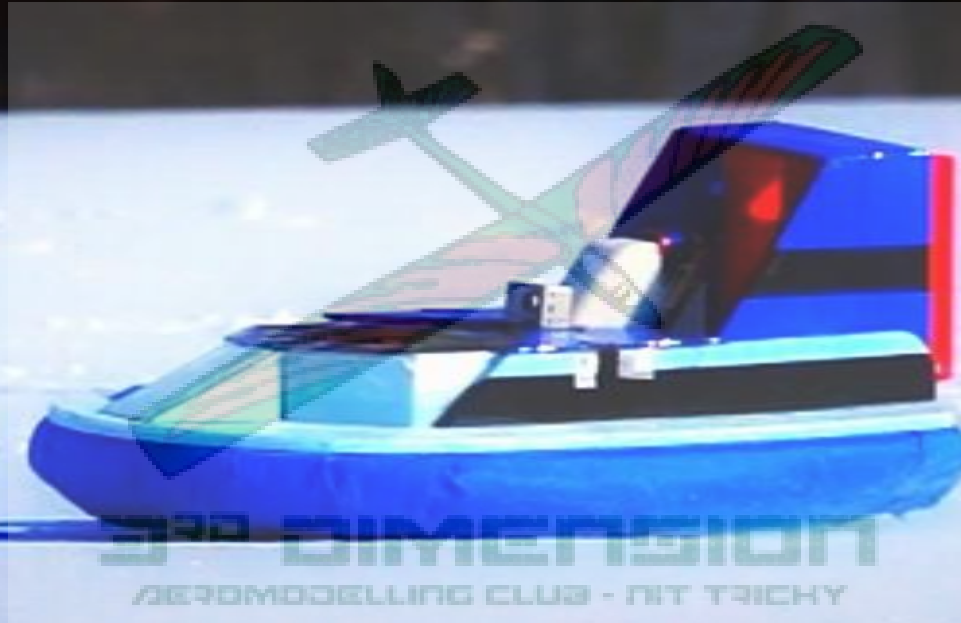


Instruction manual

This presentation only gives a rough procedure to build a two propeller hovercraft.

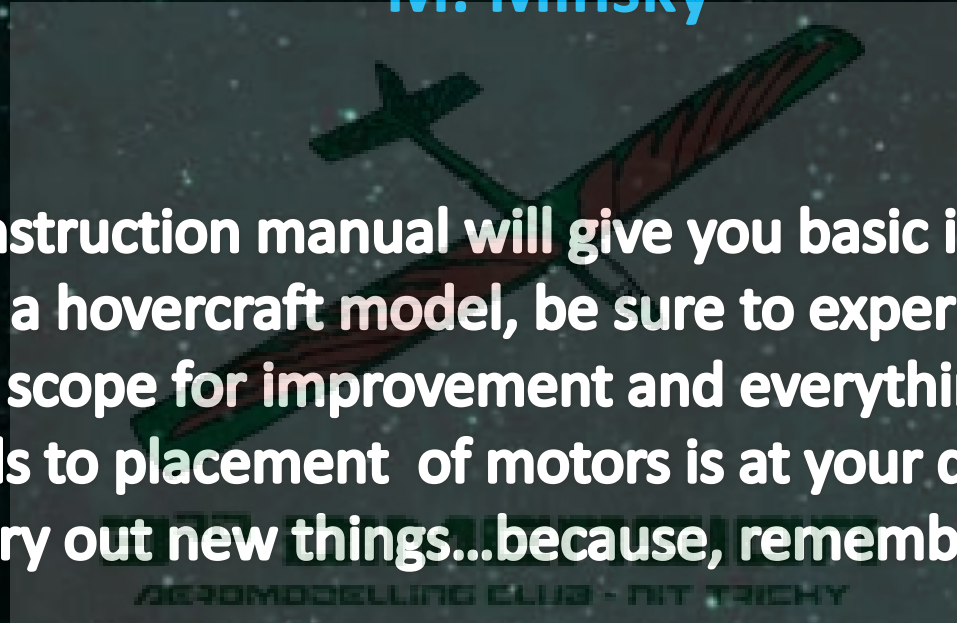
Images have been provided for support.

Dimensions may vary based upon specification of the components used, and have not been provided.



“You don't understand anything unless you understand there are at least 3 ways.”

— M. Minsky



Dear Reader,

Although this instruction manual will give you basic information on making a hovercraft model, be sure to experiment.

There is a lot of scope for improvement and everything from choice of materials to placement of motors is at your discretion.

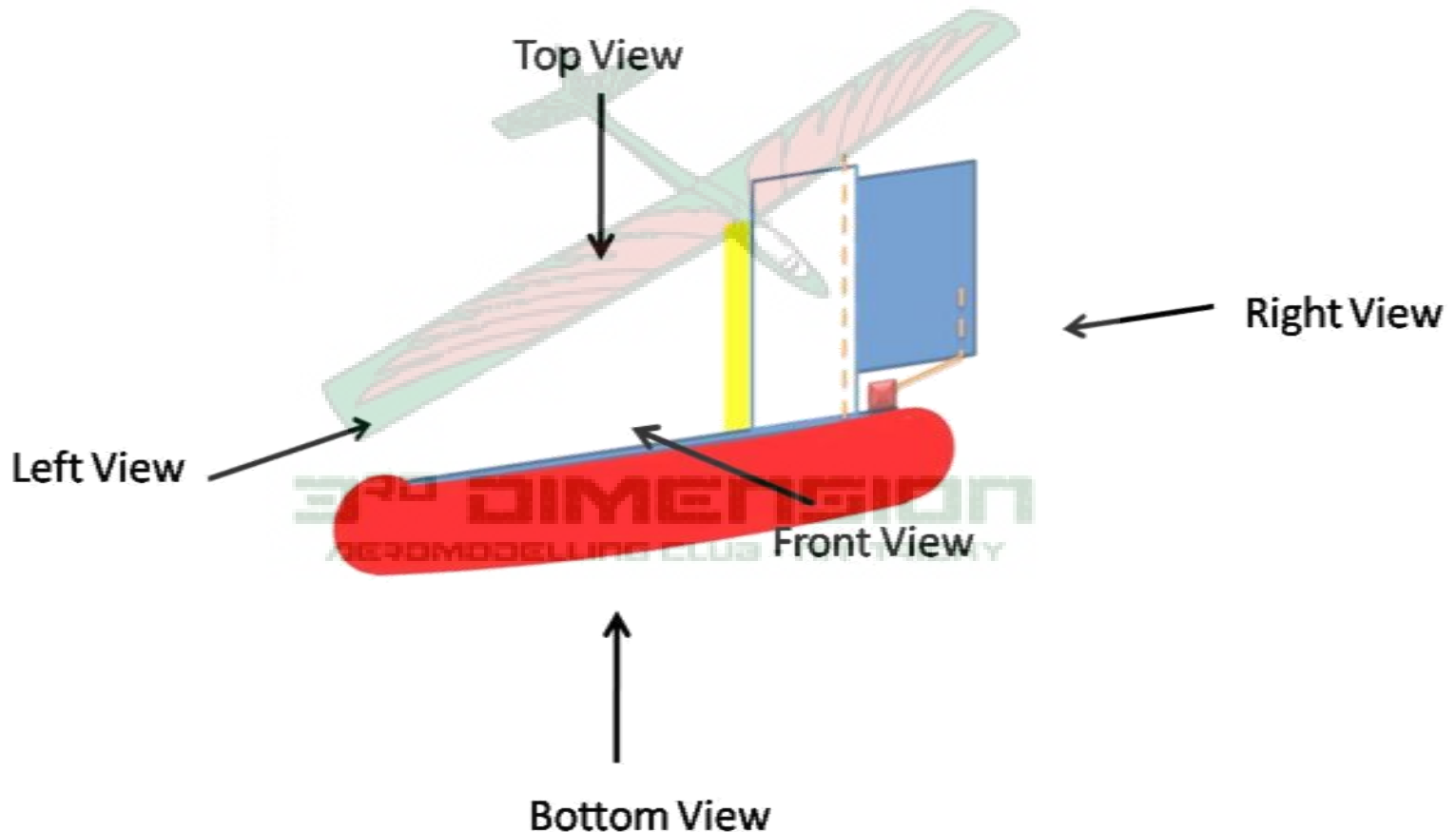
So try out new things...because, remember:

“Innovation is the only way to win.”

— Steve Jobs

NOTE:

- All diagrams are consistent with First Angle Projection unless otherwise mentioned.



BEWARE!



- As a thumb rule, you may choose the length of the hovercraft to be twice its width.

Note:

**Reducing the area wont reduce weight,
But it increases the pressure.**

- Make your electronic connections water proof.
- Check the direction of thrust before mounting the motor.

BEWARE!



- Give enough clearance for all dimensions.
- The motor mount should not vibrate or be brittle.
- Never apply hot glue or super glue to thermocol or coroplast.



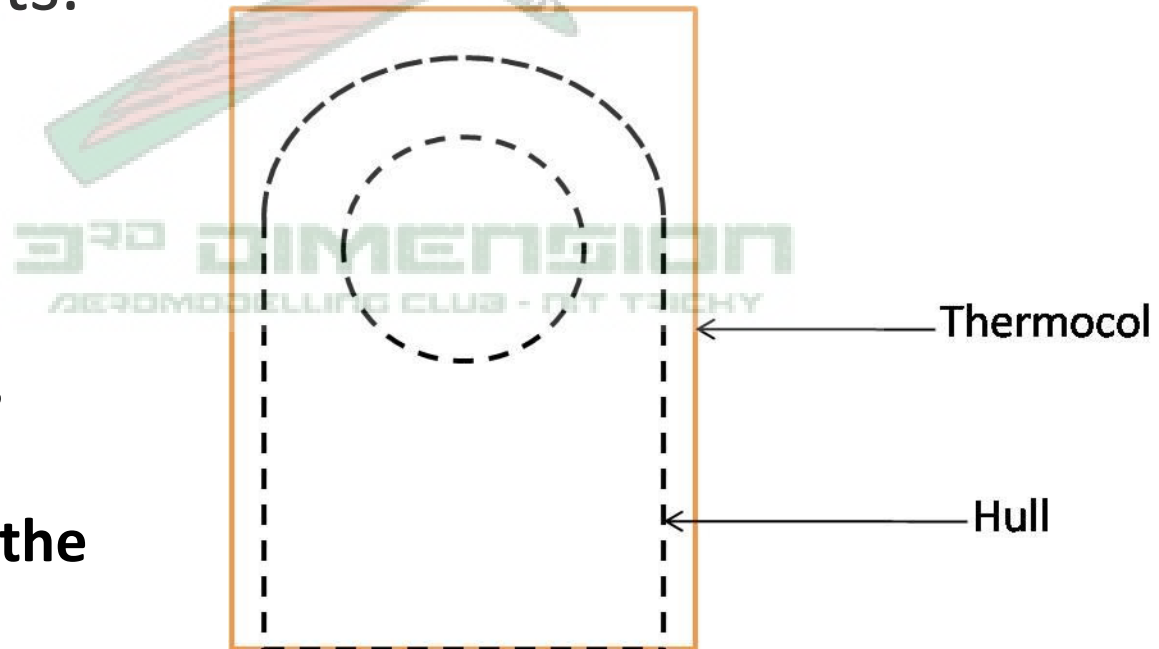
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LIST OF MATERIALS

BUILD MATERIALS	SKIRT MATERIAL	MISCELLANEOUS	ELECTRONICS
<p>Thermocol Coroplast Styrofoam PVC pipes Wooden plank</p>	<p>Any soft and durable material.</p>	<p>Sand paper Fibre tape Connecting rods Cutters Screws Screw drivers Glue sticks Glue gun.</p>	<p>LIPO batteries (2 nos) Servo Motor (with control horns) BLDC Motors (2 nos) Appropriate ESC (2 nos) Receiver-Transmitter Set Propellers (2 nos)</p>

Fabrication Step 1: The Hull

- From the build material being used (say thermocol), draw the following shape with dimensions according to the required hovercraft size and cut it out to form the hull. Obtain **two** such cut outs.



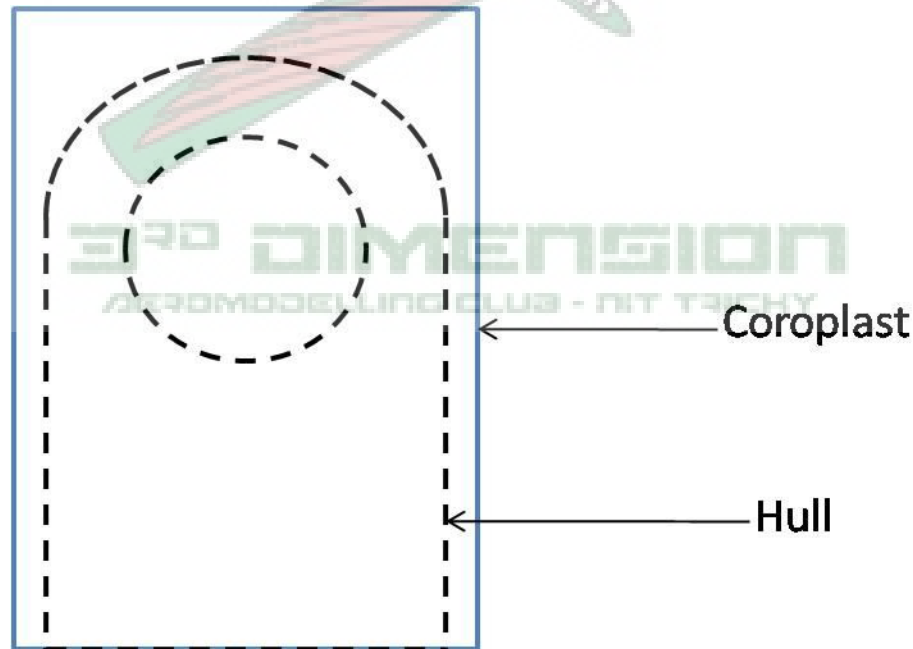
NOTE:

You can always
experiment
with the shape of the
hovercraft!

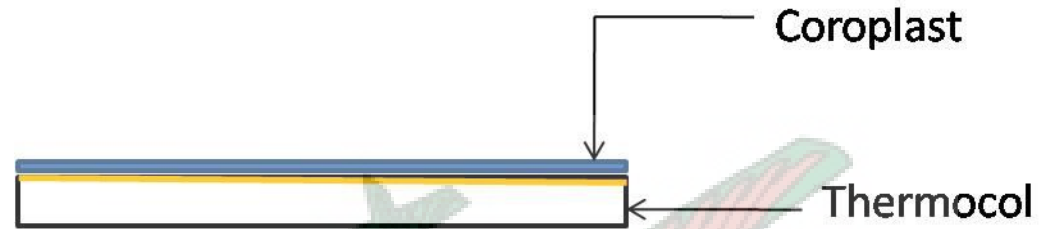
This is just an example.

- Cut out the same shape from the coroplast and stick it on top of one of the thermocol cut-outs.

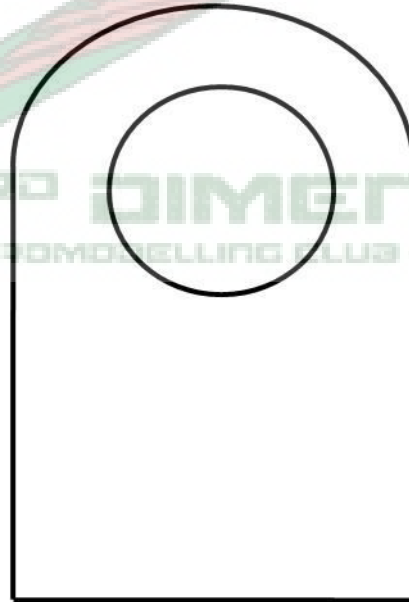
(In order to reinforce the structure of the hull)



FRONT VIEW



TOP VIEW



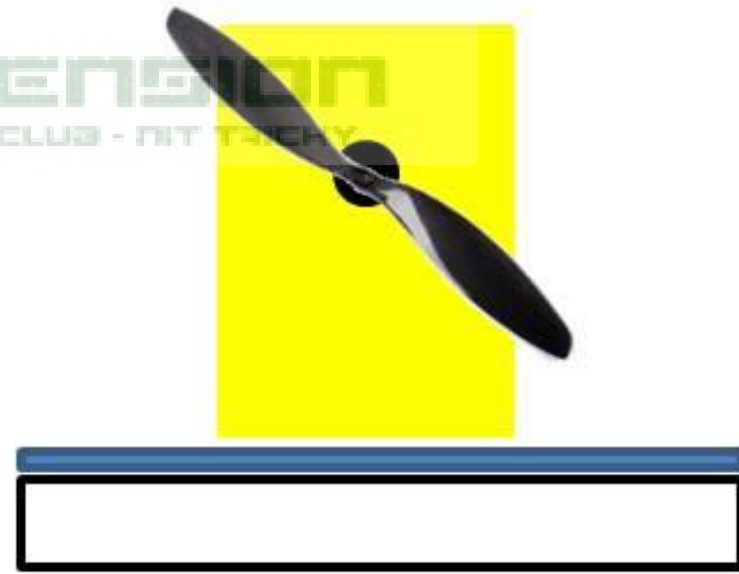
Step 2:

The mount for thrust motor

- Prepare the motor mount for the thrust motor using Styrofoam reinforced with wooden sticks or with balsa wood.
- Attach the propeller to the motor and mount it using screws.

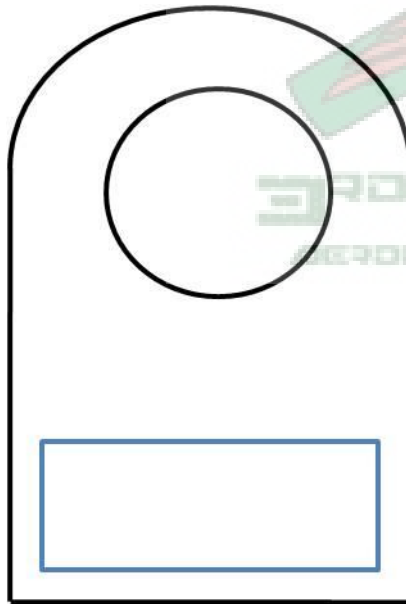
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RIGHT VIEW

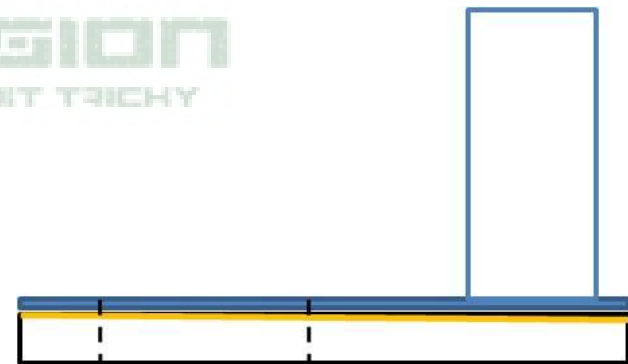


Step 3: The Air Box

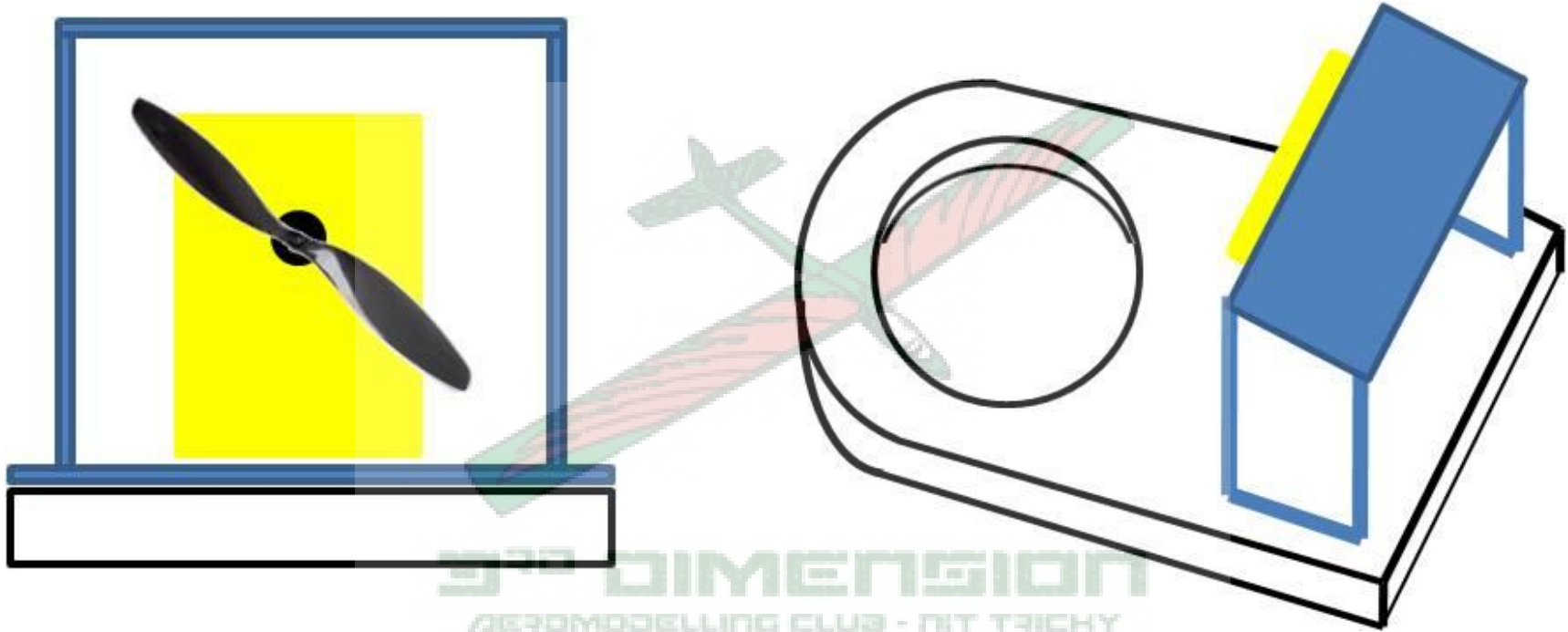
Cut out 3 rectangular coroplast pieces keeping in mind the size and height of the thrust propeller, to form the air box. Secure the 3 pieces together and the air box to the shown position on the hull.



TOP VIEW



FRONT VIEW



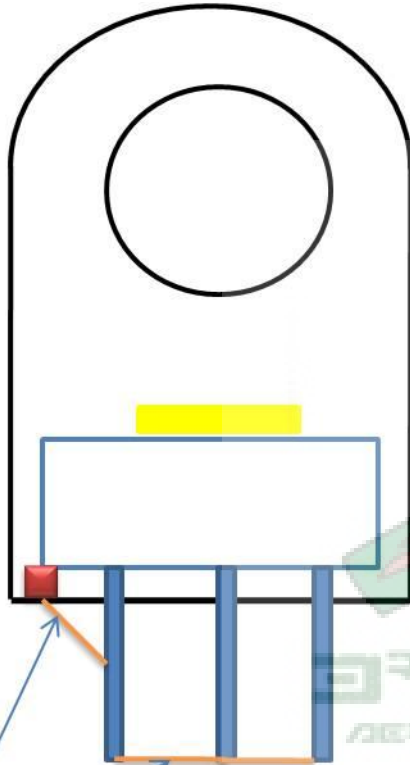
RIGHT VIEW

JUST TO GIVE YOU AN IDEA OF
HOW THE MODEL LOOKS A
OF NOW!

Step 4: The Rudders

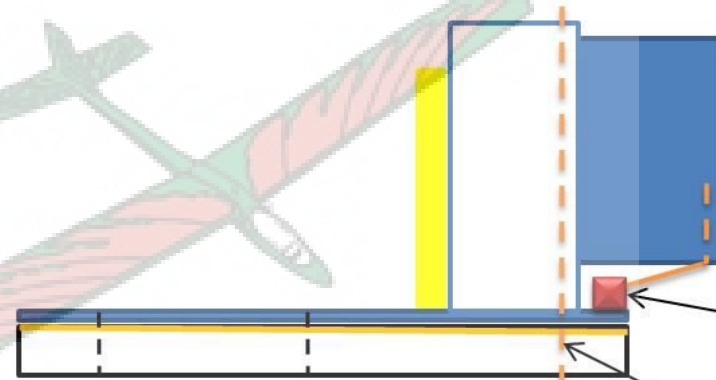
- With the size of the air box in mind, cut out 3 rectangular coroplast pieces along the flute, for the rudders.
- Secure the rudders to the air box using connecting rods and connect each of them to the other by inserting connecting rods into the flutes.
- Attach the control horn of the servo to one of the rudders

TOP VIEW



Connecting Rods

FRONT VIEW



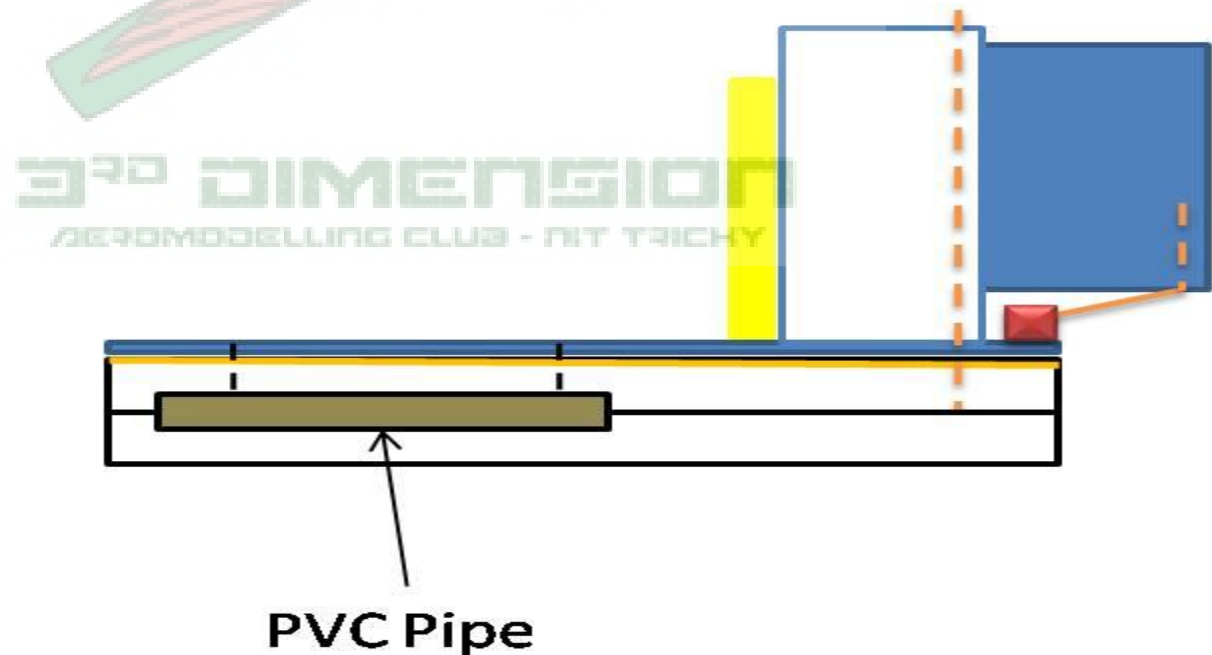
Servo

Connecting Rod

Step 5:

The Mount for Lift Motor

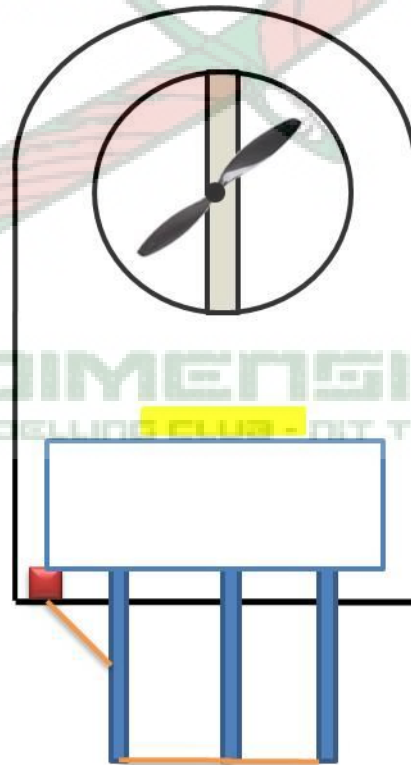
- A small wooden plank or PVC pipe is fitted between the hull and the second thermocol cut-out (obtained in step 1) by chiseling out the required amount of thermocol.



Attach the propeller to the motor and secure the motor to the mount using screws.

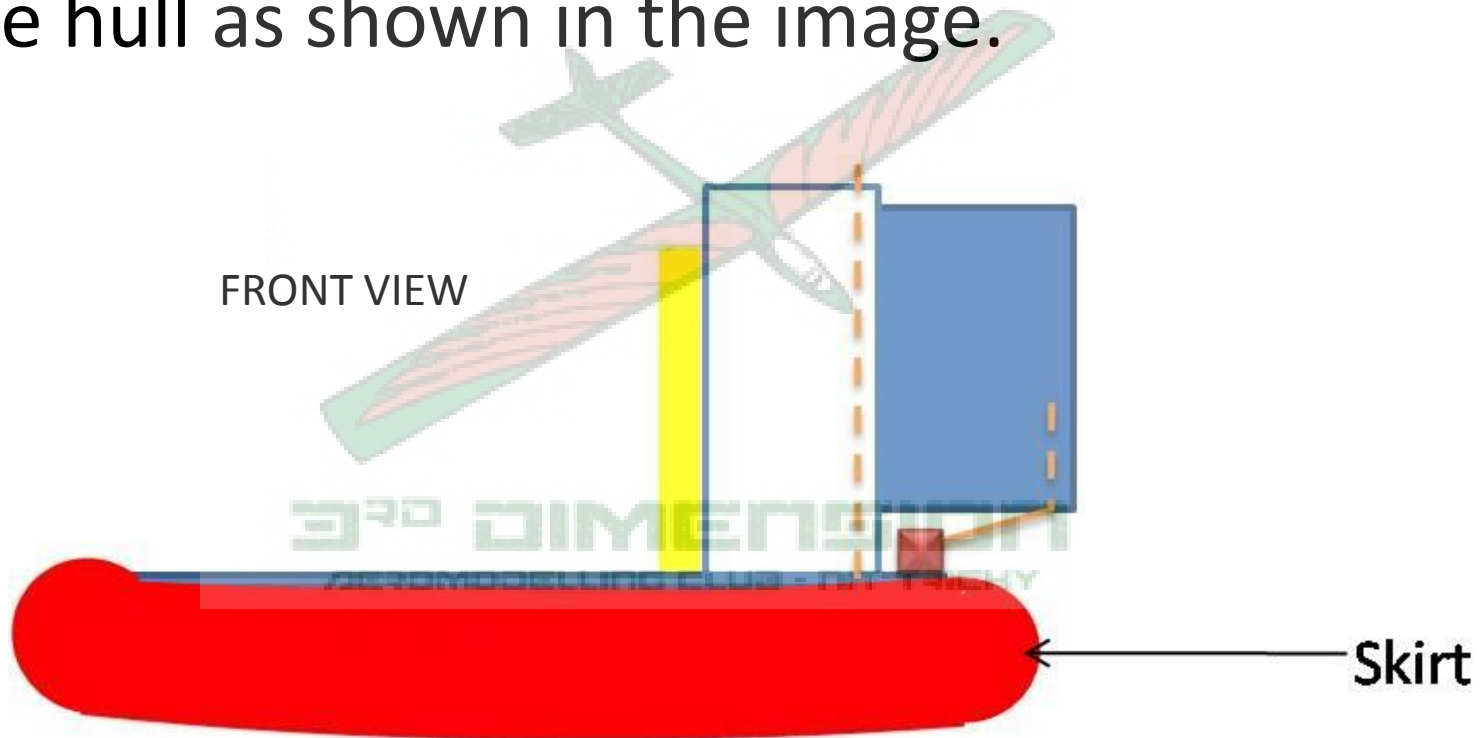
Note: Zip-ties can also be used for this purpose.

TOP VIEW



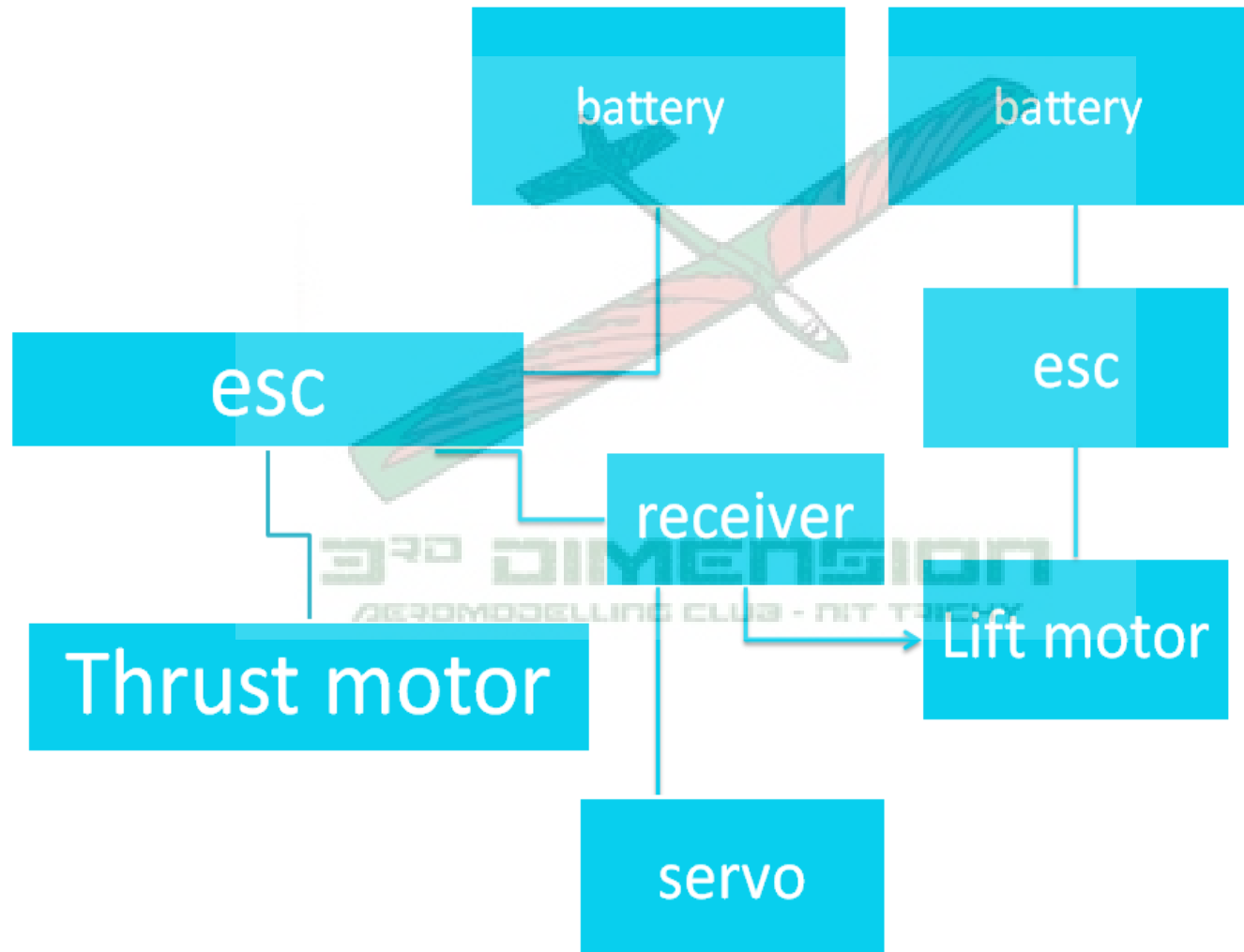
Step 6: The Skirt

Select an appropriate skirt material and stick it to the hull as shown in the image.



Step 7:

Layout of Electronic Connections



Your hovercraft may now look like this...



Note: The above hovercraft has a circular air-box structure



Notice how the servo horn is connected to the rudder using a connecting rod

Step 8: Piloting

- Bind the transmitter and receiver using the binder loop.
- Check for the proper working of all 3 channels.





What are you waiting for?
Hover Away!

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