Super fast RC Hovercraft

Team name: INSPIRE

Team member : Harit kumar (14B030022)

Vinay kumar chahar (140260020)

Dinesh kumar (140100066)

IDEA: Our project may help in spying using wireless camera. It also help in rescuing because of its high speed when made on larger size.

COMPONENT: In making of hovercraft, we want to use EDF and one motor, motor for producing lift and EDF for propelling. The shape of base, we are planning pentagonal.

We don't know exactly what should be the rpm of main motor (producing lift in flight) as it should depend upon weight..

The material which we have thought for the base maybe either the same chloroplast as we used for RC plane or we may use balsa wood too as it would be stronger. The outer covering we decide would be of chloroplast.

For the skirting of hovercraft, we are planning to use either rubber tube, or terylene coated nylon...but our preference is for nylon because its water proof, light and smooth. May be heavy duty garbage bag.

As per our planning we will use :-

STEP 1. Buy raw materials and electronics.

Electronics:

- EDF
- ESC
- Lithium battery
- 1 motor
- Pipe
- RC controller
- Chloroplast
- Balsa wood
- Terylene nylon
- Wireless camera

Step 2: The Base and Mounting the EDF

The base is probably the easiest part in the build of the hovercraft. We did not want a rounded front end so we went with a sharp cut nose.

Step 3: The Skirt and Air Splitting duct (directs air into skirt)

The Skirt is constructed of a heavy duty terylene nylon. Circular holes were cut in the center to release the air from the skirt.

Step 4: Flippers and body

The flippers and body were made according to the size of hovercraft.

Step 5: Electronics

The basic and most important part is done at last .The IC part and remote control part ,all the connections and testing will be done at last.

We think 8-9 thousand rupees should be budget, mainly due to EDF ,ESC,RC controller and battery(we have RC plane motor though)..

Finally at the end of this project we will at least have an idea of

1: Aero modeling basics

2: fluid mechanics

3: general mechanism of RC model.

4: Basic electronics etc

Complications in the above project:-

1.High speed : One of the biggest difference between other hovercraft and our superfast hovercraft is its very high speed which is upto 50km/h . This high speed is due the high rpm EDF and its fluidic shape

2.Design: The fluidic shape will be design in such a manner it reduces the air drag force and help the bot to move fast . The aeromodling shape is designed such a that it helps to increase downforce .

3.Weight: We will try to reduce the body weight by using the plastic moters and light weight battery to attend such a high speed.

4.Drag force: The drag force from ground is the major part that couses speed reduction and this will be reduced using the proper rpm motor that is for uplifting the hovercraft .

5.Flippers size : The size and the shape of the flippers is very important because at the speed of 50km/h it matters as the probability of toppling increases.

6.Structure : The exact structure of the hovercraft is a challenging task as hovercraft reached upto 50km/h. The making of the structure according to the centre of gravity , the thrust motor and the uplifting motor . The rpm of the thrust motor and uplifting motor will be decided according to the body weight and COM and the shape of the hovercraft.

7.Camera : We will use the camera at a suitable place in the hovercraft according to the weight and maximum coverage area.

- If we able to complete our project we will try to upgrade it to make this hovercraft into hovercraft halicopter .
- Please give your suggestions and help to ensure that our proposal is accepted..