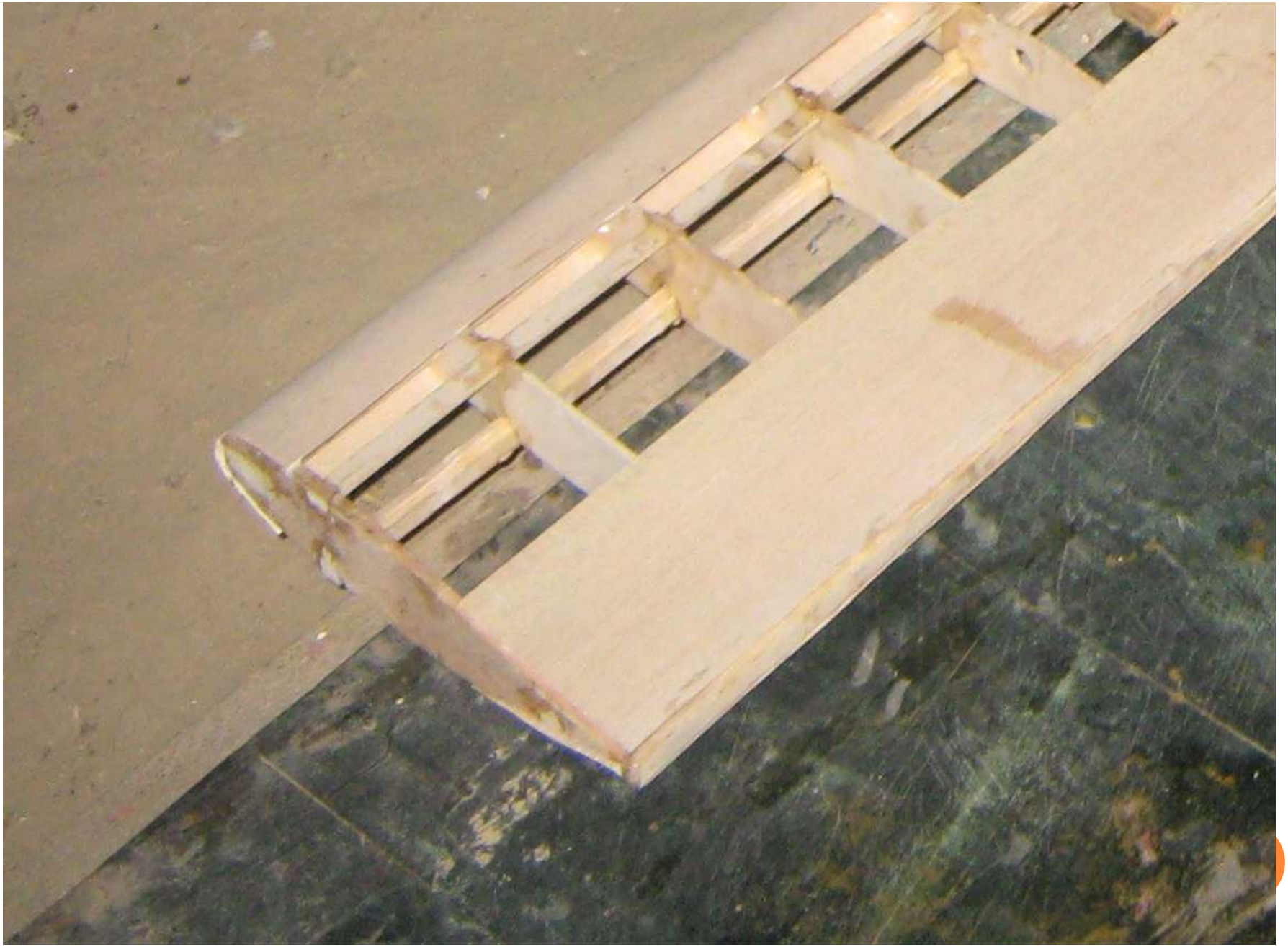

AEROMODELLING CLUB
IIT KANPUR
Give Wings to Imagination...

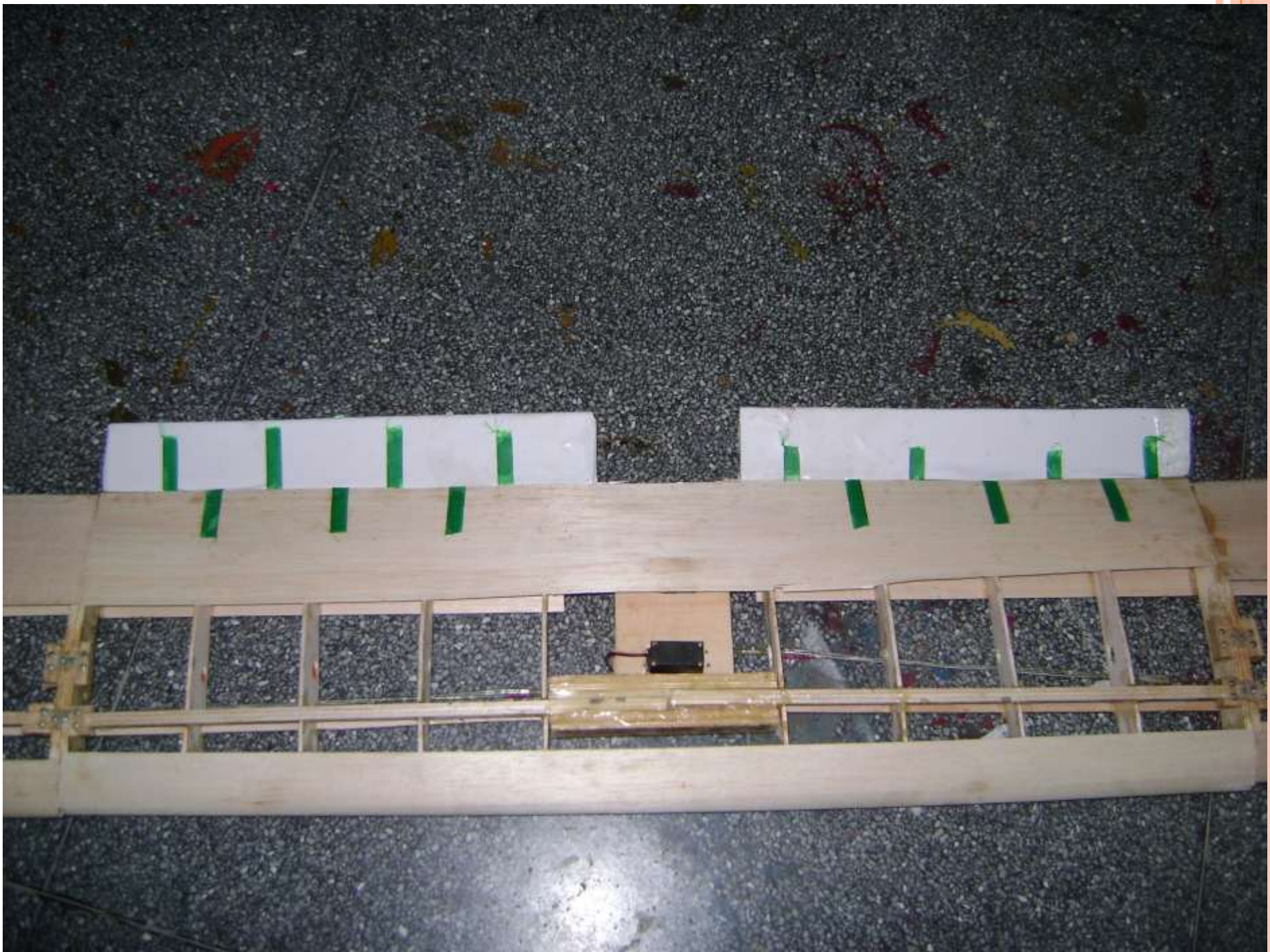
RC PLANES:

DETAILS AND CONSTRUCTION

WING CONSTRUCTION

- Several airfoils are cut from balsa wood
- These airfoils are connected using aluminium rod and balsa support rods
- The structure is partially covered with 1mm sheet balsa throughout the wing span
- Finally ailerons are attached to the wing.

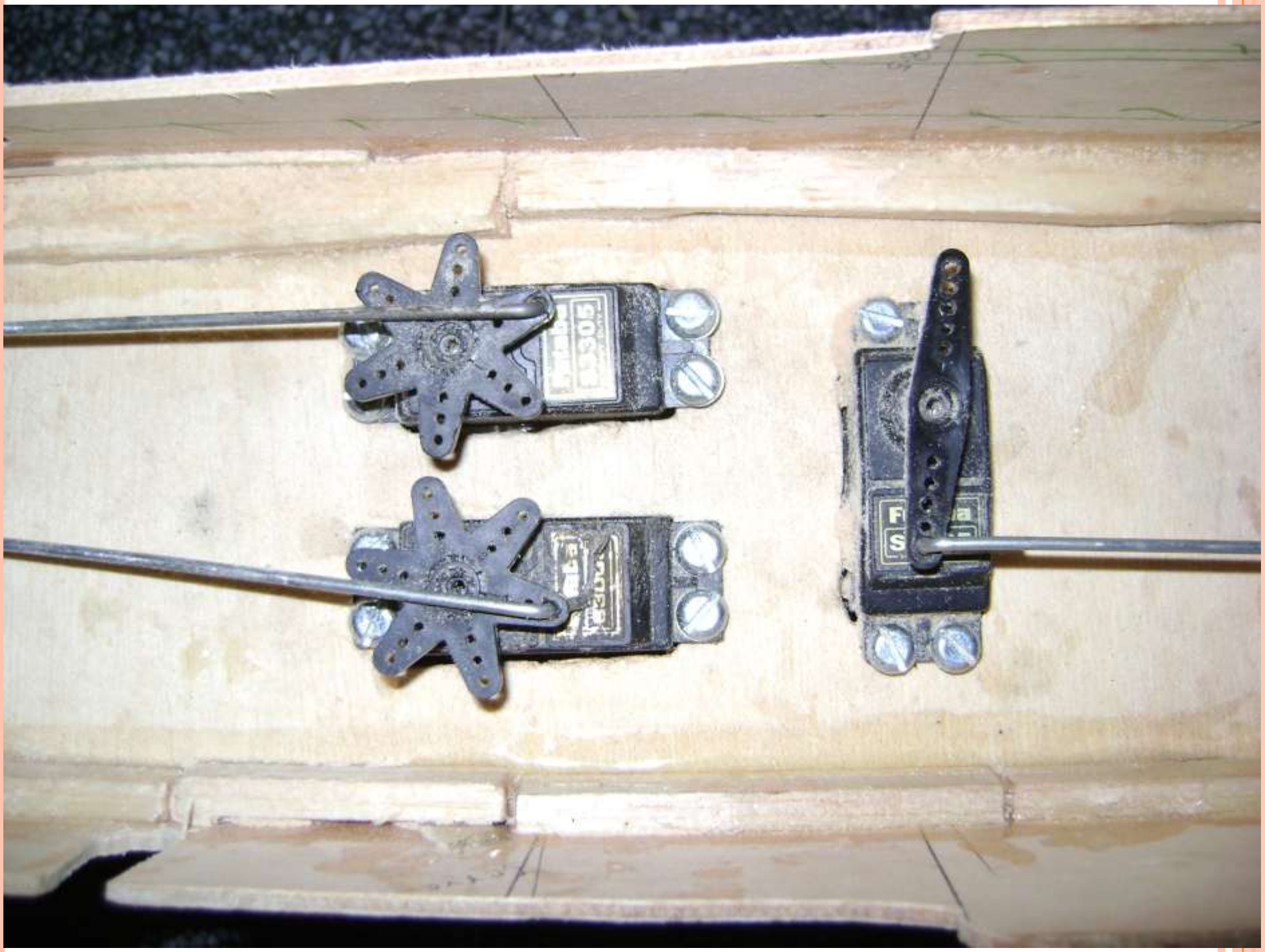


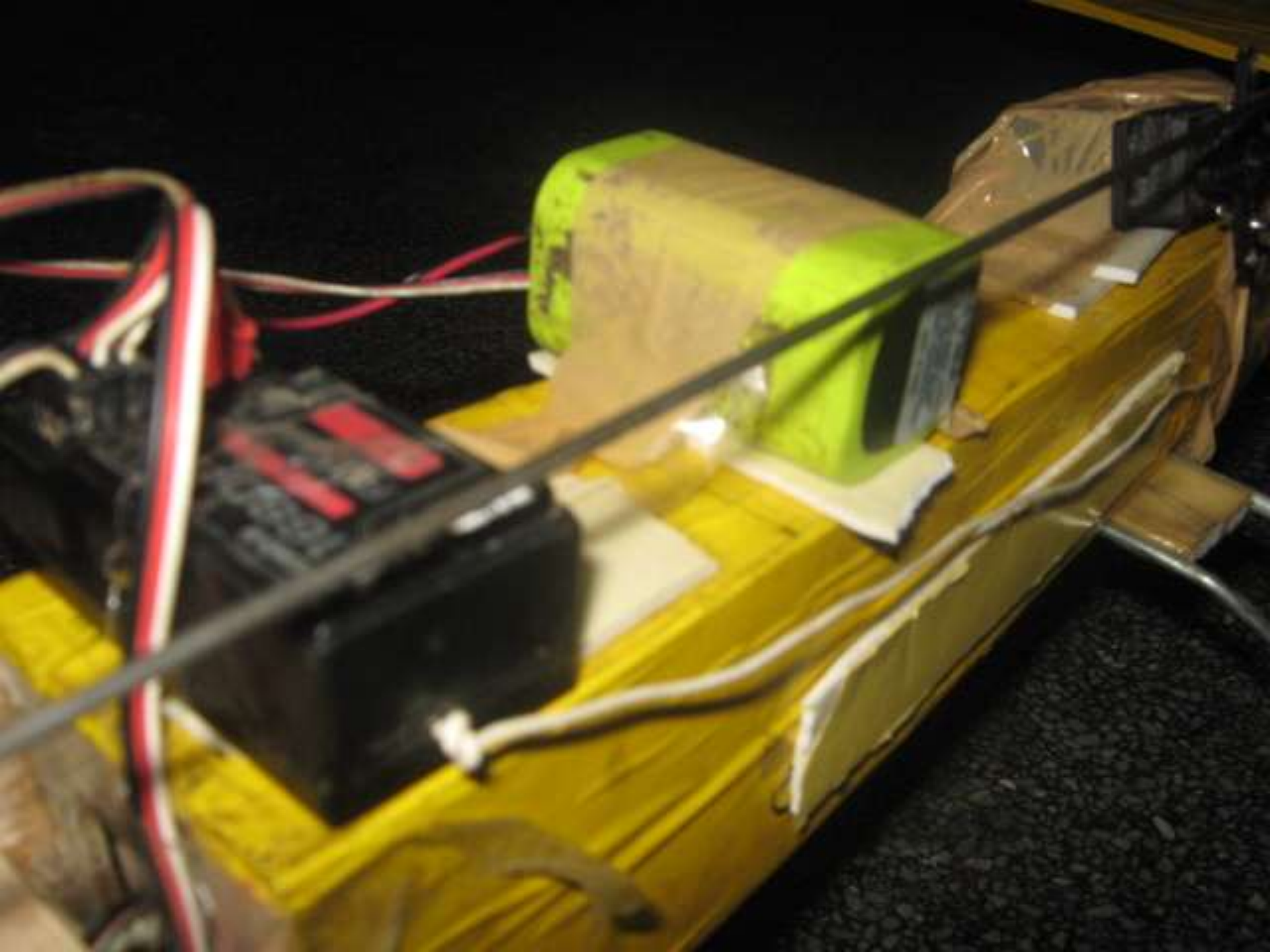


SERVOS

- These are responsible for controls of RC Plane.
- The control parts – ailerons, elevators, engine throttle and rudders are connected to the servos using push rods
- All servos are connected to receiver.
- Rotation of servos(torque) on receiving signal from transmitter causes the movements of control parts


HITEC





Aileron specifications

- Length of aileron
- Breadth of aileron
- The edges of the aileron were rounded to minimize drag effect.

Making tail

- One point to be kept in mind while making the elevator and rudder is that their area too is to be included in the area of the tail and vertical stabilizer respectively.

VERTICAL STABILIZER AND RUDDER


GREAT PLANES

Fuselage

- In an aircraft reliability is a very important issue.
- Hence the strength of the plane is a very critical issue and needed to be handled carefully.

Fuselage

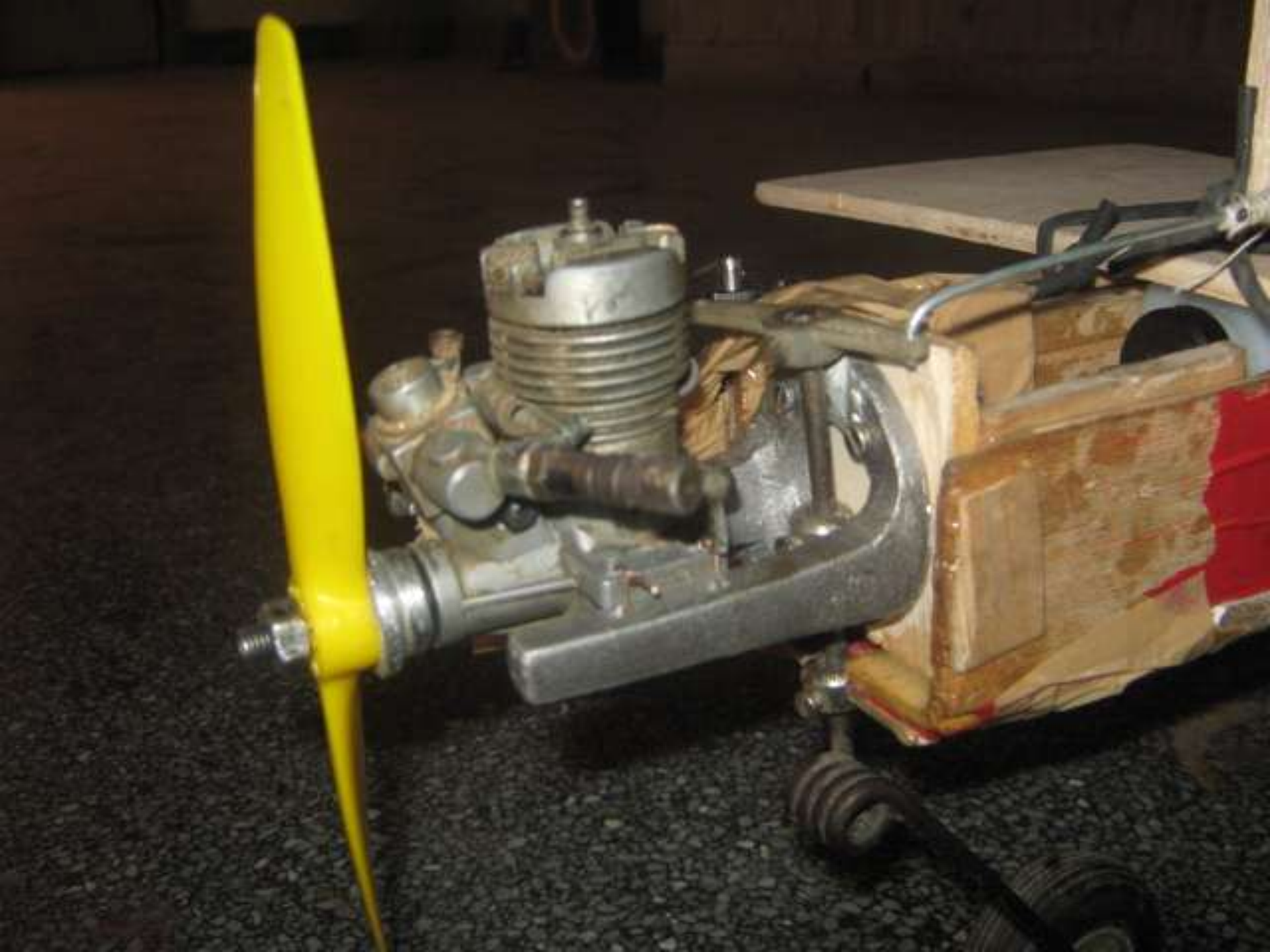
- To maintain the proper aerodynamic shape of the fuselage several scanners are set in the hind section of the fuselage.
- Between the scanners trusses are made.
- Similarly on the base we make trusses.
- At some places 6 mm balsa wood is also used to give strength.

Fuselage

- Proper strength must be there because it must not break due to the vibrations of engine.
- Also, the part where Landing Gear have to be mounted must be very strong, so that it can take up the vibrations at the time of landing.
- These parts are made using double layers of 6 mm ply.

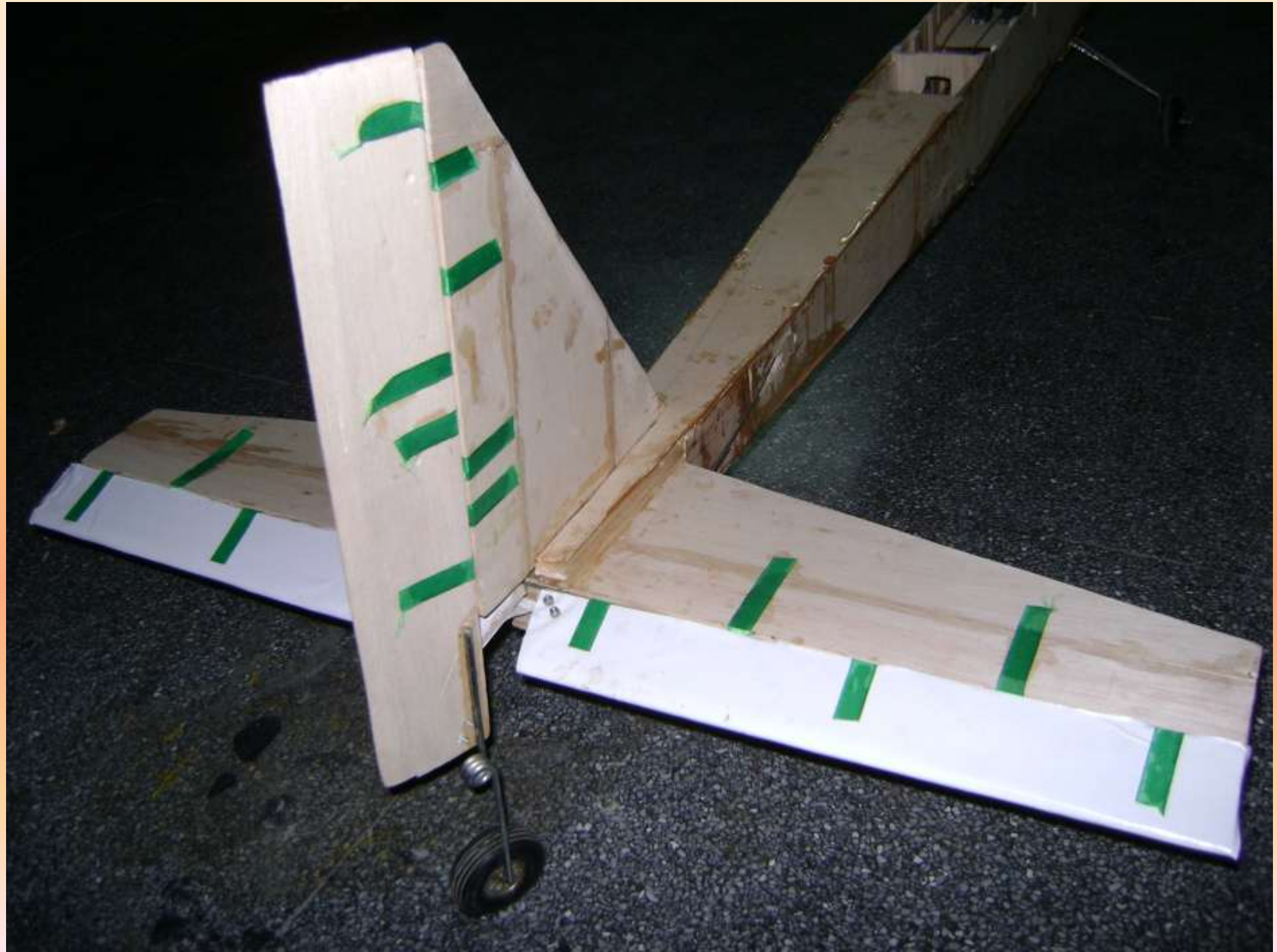
ENGINE

- Engine types- IC engines, turbofan, turbojet, electric etc.
- We use IC engine(OS 0.46 and OS 0.15) and electric engines.
- Engine mount is first fixed to the front of fuselage using nuts and bolts.
- Engine is attached to the mount.



WHEELS

(landing gears)



Fuel tank

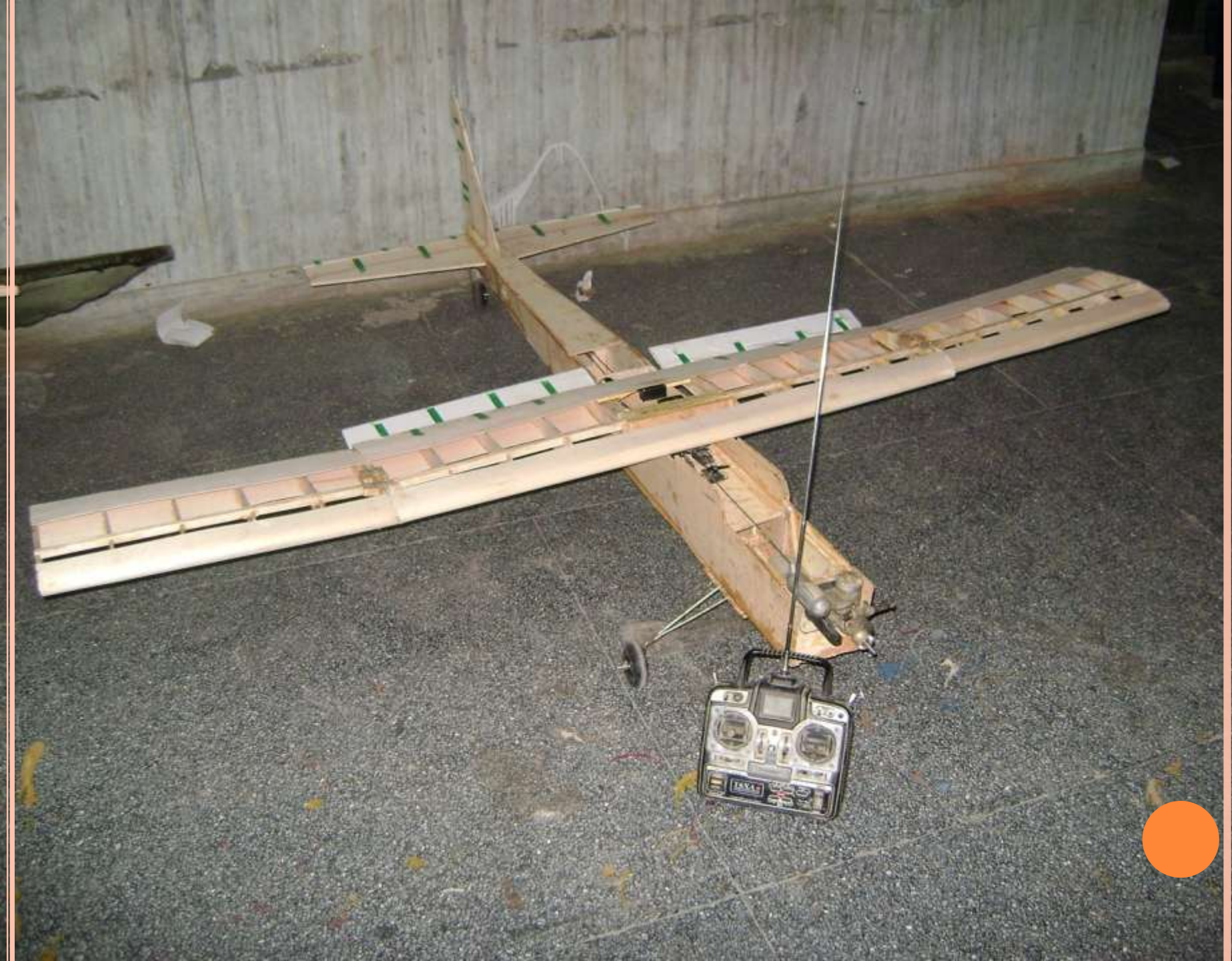
- We use a mixture of methanol and castor oil.
- Level of fuel tank must match the oil input valve.

Finding the position of wing

- One of the most important thing is to find a suitable position for the wing.
- For if the centre of gravity of the entire system is not in between the aerodynamic centre and the tail then the plane will not be stable.
- We try to keep the position of centre of gravity at a distance of 0.1c to 0.2c from the aerodynamic centre.
- The aerodynamic centre is located at a distance of 0.25c (approximately) from the leading edge of the wing for subsonic speeds.

Fixing wing

- The wing is attached to the fuselage with the help of thin rubber tubes.
- With this we can separate the two parts and change the position of the wing as per the requirements.
- Like we can use a engine of better capacity.
- But with that the weight will increase and so the position of centre of gravity will vary.
- So, we will have to readjust the wings position.



COVERING