

Amphibious vehicle

Kamlesh Sawant

Guided by: **Prof. V. P. Bapat**

Amphibian

Adjective

1. living or able to live both on land and in water; belonging to both land and water.
2. Trained or organized to fight, or fighting, on both land and sea: amphibious troops.
3. combining two qualities, kinds, traits, etc.; of or having a mixed or twofold nature.

Study restricted for Amphibian vehicle which can operate on land and water(floating)

A photograph showing three policemen on a yellow amphibious vehicle, likely a Dingo, in a body of water. The vehicle has large black tracks and a roll cage. The policemen are wearing uniforms; the driver and passenger are in the front, and a third is standing behind the driver. The water is choppy, and the vehicle is creating a spray. The background is a hazy, overcast sky.

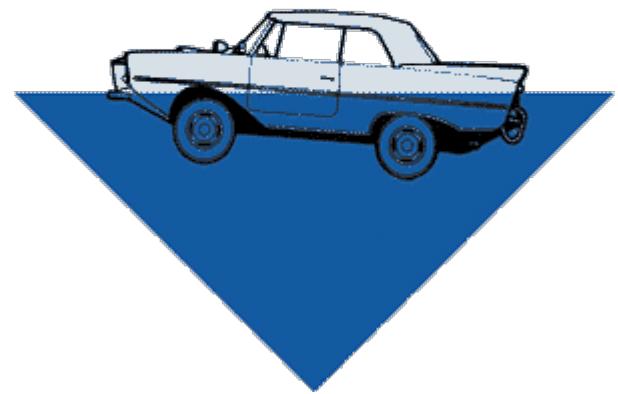
Policemen on amphibious vehicles attend a parade in Mumbai November 26, 2009, on the first anniversary of Mumbai attacks



Mumbai Police Commissions Sealegs Amphibious Boats

18 more boats are expected to join

Amphibious vehicles



Points to notice

Technology & Engineering

- Amphibious vehicles started by mounting wheels on boat
- Though retractable wheels concept came in 1930s it was used in water half of century more effectively.
- Various propulsions are tried for propelling on water surface - Peddles, Propeller (Air & water), waterjet

Points to notice

Visual aspect

- Most of the attempts to build an amphibious vehicle were to just to make it afloat - a boxy structure
- Most attempts are with ATV which once in water acts as a floating structure.
- Though boat and a road car serve different functions than amphibious vehicle most of the **forms are of contemporary cars.**
- The recent vehicles like Aquada, Watercar, etc. can be differentiated with the sleek **hydrodynamic bottom** of a boat hull and a car body on top.
- **Waterjet outlet and propellers are one of the additional elements** carried by an amphibious vehicle.

Points to notice

General

- Most of the automobile manufacturers attempted an amphibious vehicle.
- Amphibious vehicles are now available in all versions - bus, car, a personal transport even a human powered cycle. ...??? !!!

Finding an area for
DESIGN Contribution



Two wheeler -
human powered

Two wheeler -
motorized

Virtually empty



Three wheeler



Four wheeler



Bus or public
transport



Military amphibious



Other

Amphibious vehicle segments

● Proven

● Concept

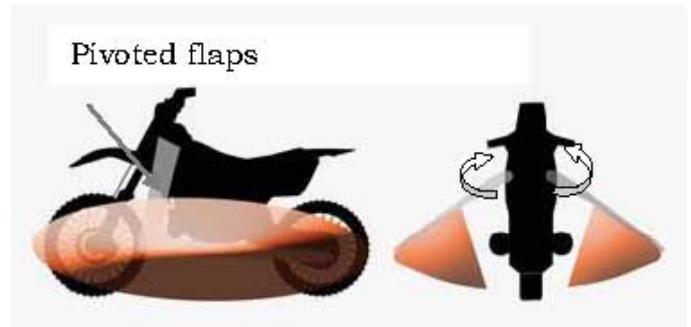
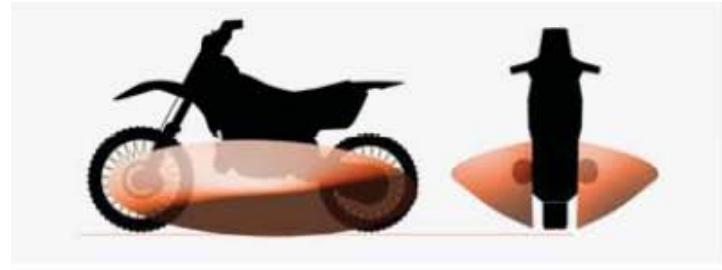
● Garage trial model

Challenges involved with design of Amphibious two - wheeler

- All such existing vehicles are garage made versions of the existing motorized two wheelers.
- Feedback from potential users for such proposed vehicle in the early stage of design, will be too superficial

Addressing challenges involved with design of Amphibious two - wheeler

- **Ideation - to make it afloat** - evaluation
 - Possible configurations
- **Selecting technology**
- **Deciding layout**
- **Working**



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Design brief

Design an amphibious motorized two-wheeler for youth.

Aesthetic requirement:

The two wheeler should be designed for the youth segment who is more inclined to accept changes, experimental in nature and enjoys freedom. It should also evoke a feeling of - 'more than a bike', with its appearance.

Ergonomic requirement:

For, 2 persons, Tandem seating

The posture and human interaction points of driver and pillion namely seat, foot rests, controls should be inline with the contemporary two wheelers.

Design brief

On road requirements

Wheelbase - 1355 mm

Saddle height - 790 mm

Overall dimensions

Maximum height - 1100 mm

Maximum length - 2000 mm

Maximum width - 770 mm

Water mode requirement

Maximum weight - 350 kg

Overall dimensions

Maximum height - 1500 mm

Maximum length - 2300 mm

Minimum width - 1800 mm

Design brief

Power plant and drive

4 stroke, single cylinder, air cooled

Starter - Electric

Primary drive - Gear

Final drive - chain

Water propulsion - Podded propellers with electric motors

Chassis Type - Diamond

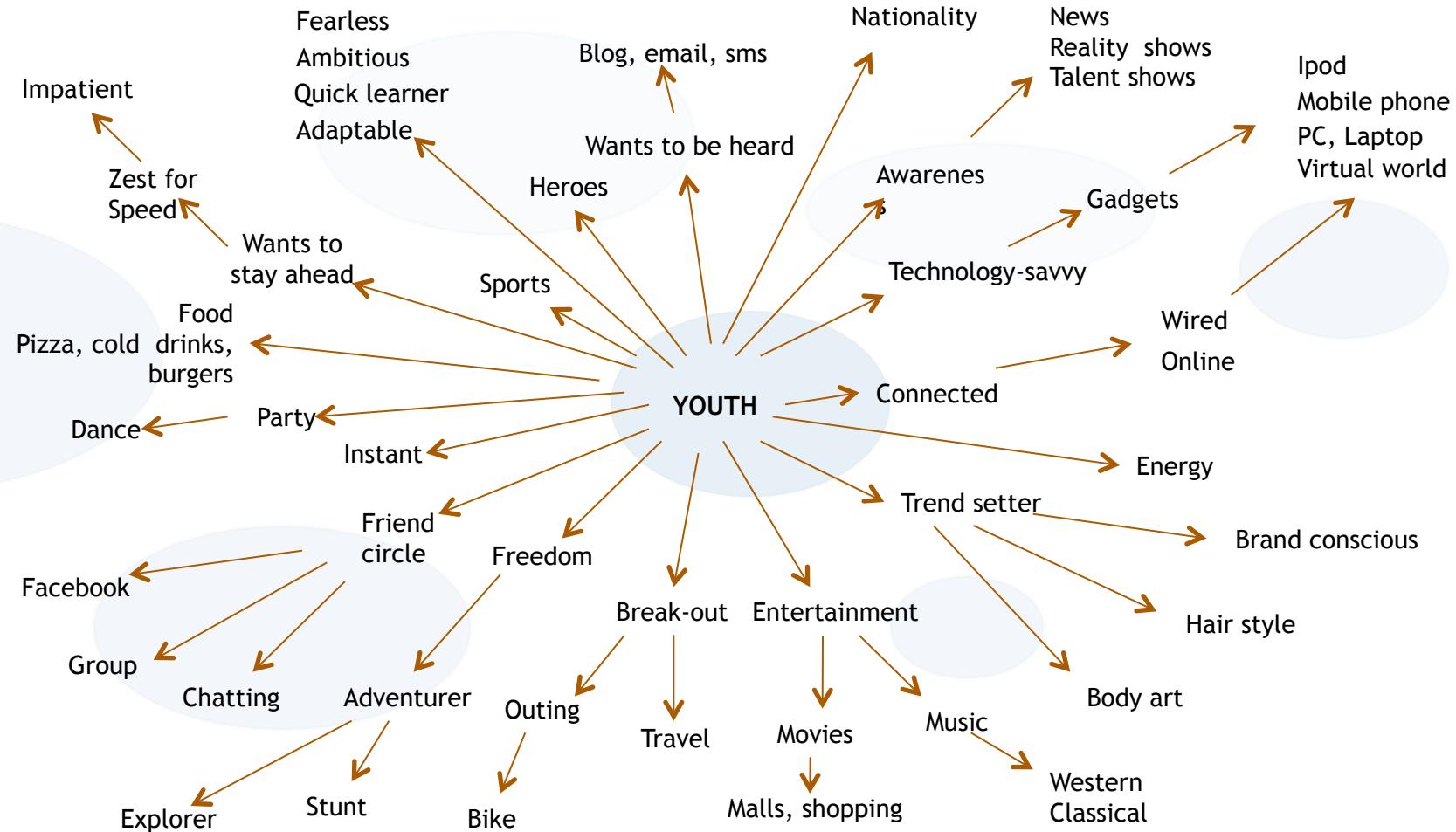
Suspension (Front) - 41 mm Telescopic fork

Suspension (Rear) - Adjustable monoshock

Brakes (Front) - Single hydraulic

Brakes (Rear) - 130 mm dia drum

MIND MAP - YOUTH



Lifestyle



Disco, party



Outings



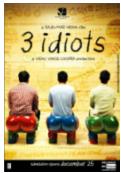
Hangouts



Studies



Treks



Movies



Hobbies



Home



Music



Food



Long week-ends



Hairstyle



Sports



Outfits



Traffic



Personal vehicle



Friends



week-days Office



e-exposure



Virtual world



Facebook
Chatting
SMS
Mobile phone
Blog
email



YOUTH

Online
wired

Guiltless consumer

Technology savvy

Wants to be heard, seen

Likes uniqueness

decision making

Mix of western and Indian culture

Fearless

Experimental nature

Wants to stay ahead - zest for speed

Awareness of latest styling trends

Product to reflect identity

Customized belongings

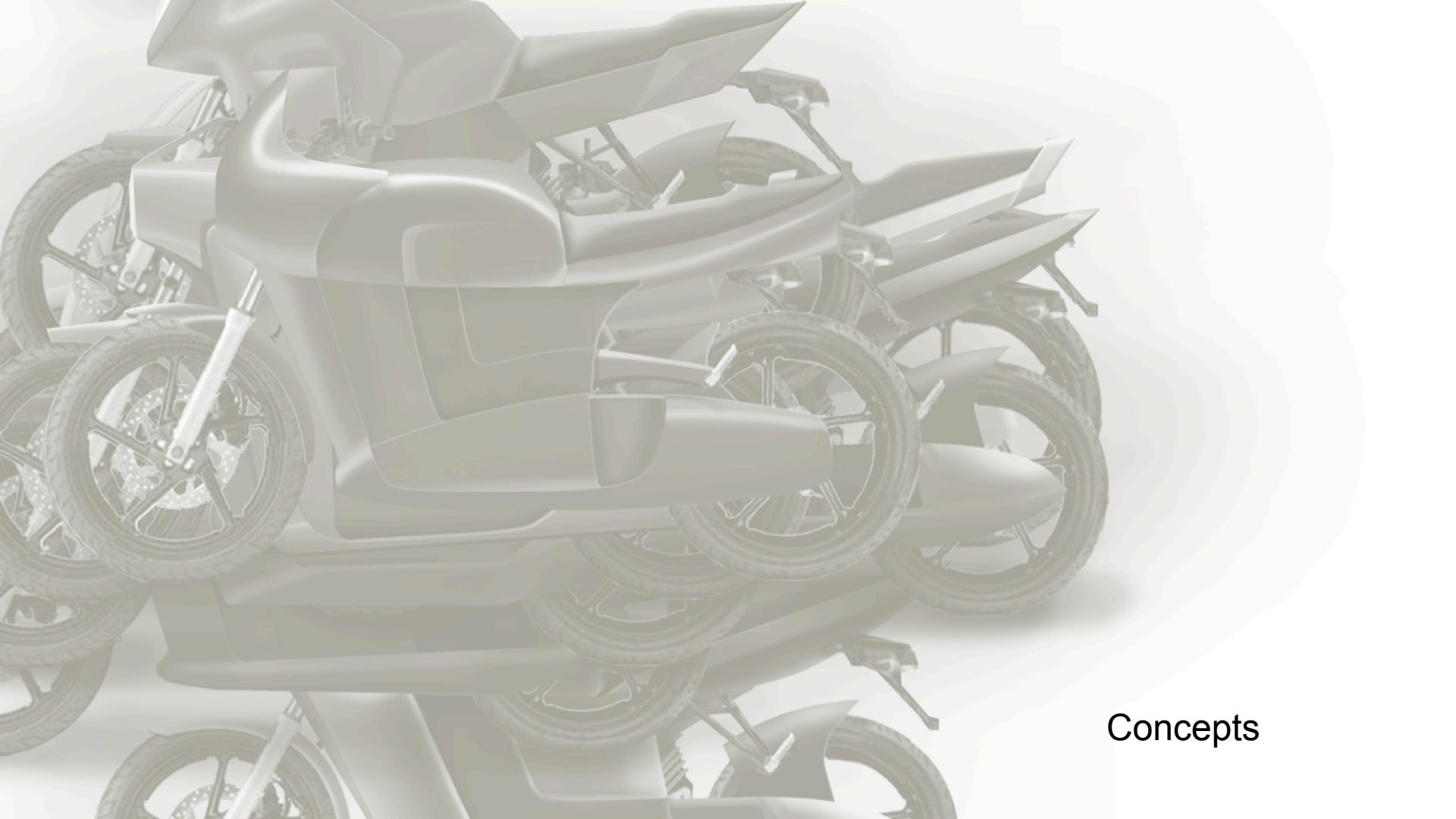


MIND MAP - FEARLESS

FEARLESS – MOOD BOARD

Decoding - FEARLESS

Aesthetic Qualities of the Line		
Fearless	Controlled Aggression	Moderated use of sharp elements
	Strong form	Dominant vertical lines with stable horizontal lines
	Poised	Motion created with inclined line but dampened by horizontal lines
	Powerful	Muscularity because of sharp value change
	Heedful, alert	Pointed element indicating direction and concentration



Concepts

Concept Evaluation

- Personal preference
- More than bike
- Novelty



Selected concept



Selected concept







break The ground barrier
amphree







Selected concept



The model