
Electric moped styling

Summer internship at E V Future, Auroville

From 13th May 2009 to ~~16th June, 19th June~~, 25th June
2009

Kamlesh B. Sawant

Roll No. 08613802, Industrial Design

Mentors: Sukrit, Akash, Raghu Kolli

Auroville and EV Future



EV Future
EV Future - established in 2007

‘Hum V’ – Brainchild of Aurosukrit and Akash



Understanding Hum -V



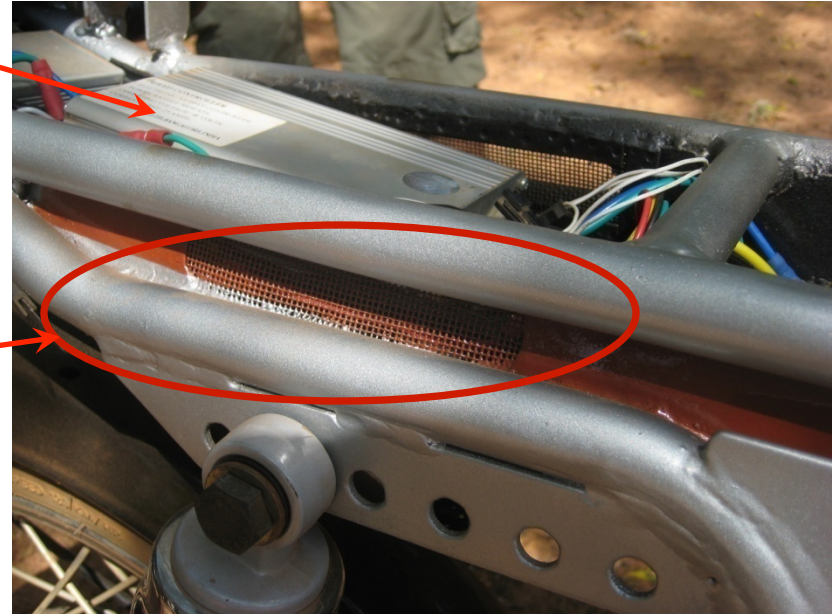
Understanding Hum -V



Understanding Hum -V

Controller

Opening with mesh
for controller Cooling



Understanding Hum -V

Tail light integration



Understanding Hum -V

Integration of head
light and side indicators



Understanding Hum -V

Side stand
No central stand



Understanding Hum -V



Wires connecting to
motor and brake





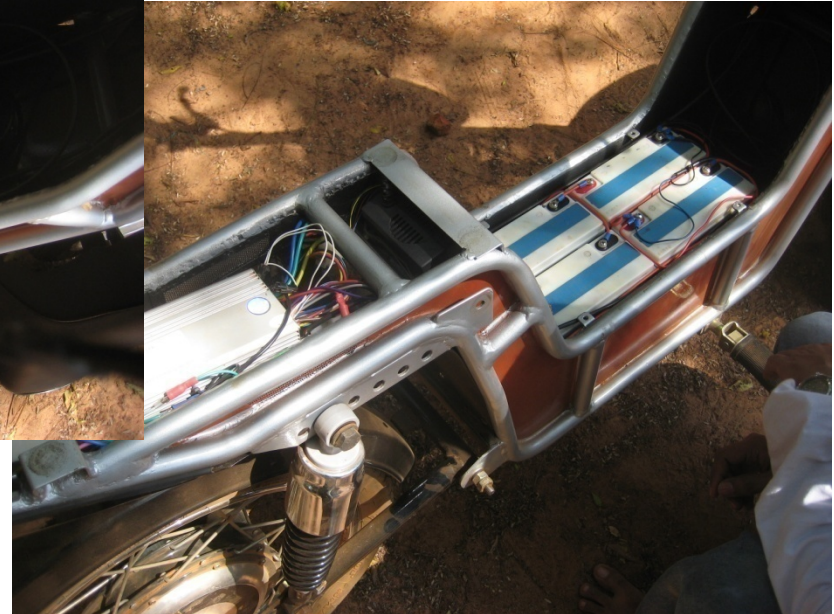
Rear brake wire running
through the body



Understanding Hum -V



Absence of wire layout



Understanding Hum -V



Provision for adjustment
– only once



Understanding Hum -V



Position of pillion foot rest

Understanding Hum -V

Front cluster



Understanding Hum -V

ERGONOMICS...?





2009 Zero



Brammo's Enertia



Synchronic

Kamlesh Sawant



Mission One EV

The Hum-V competitors in Puducherry

YO – Bikes

Yo Speed – 750 watts – Yo Bikes

Shri Cauvery Green Electric Vehicles

Flamz/Windz – 250 watts

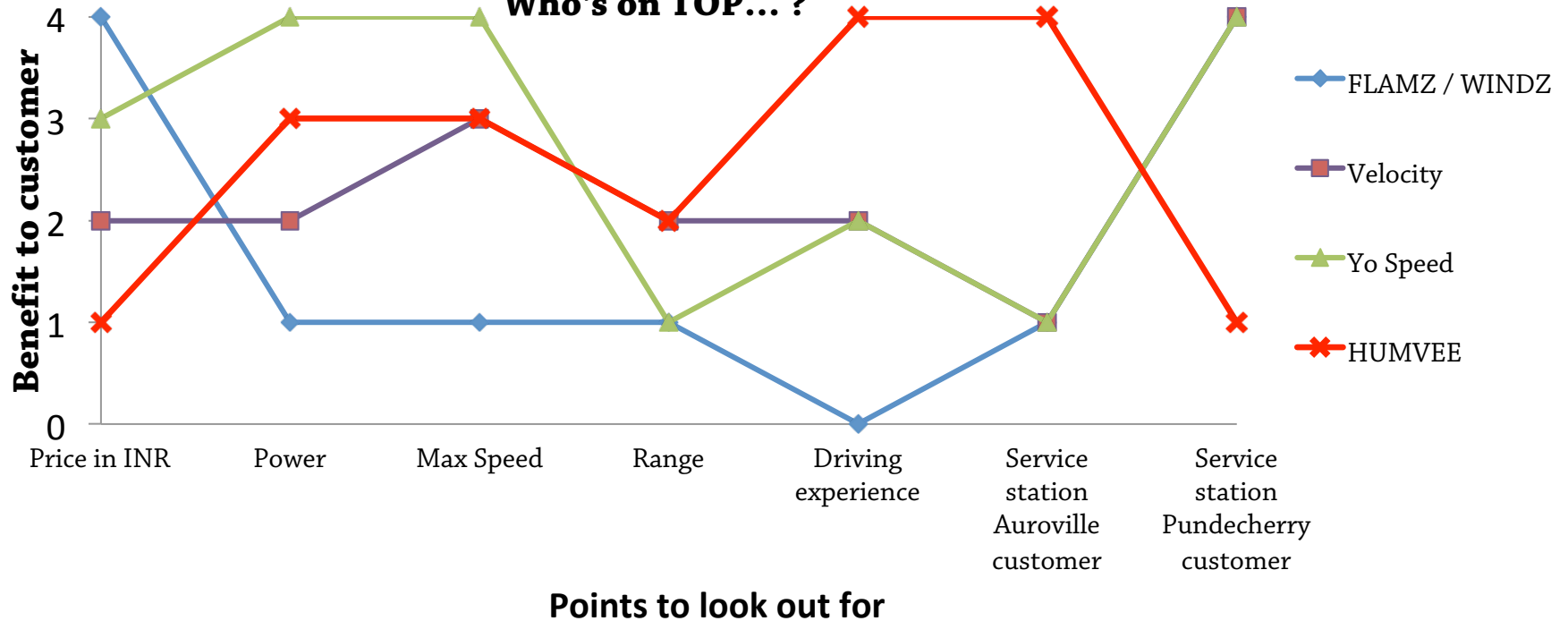
Ultra Motors

Velocity – 500 watts



Electric mopeds around world

Who's on TOP... ?



- Apart from cost Humvee also loses out on ARAI and RTO approval in today's date.

Driving experience rated on 0 to 4 scale

Price data as on 23rd May, 2009

Hum-V users feedback

Why Hum-V

- Noiseless way of driving
- Customizable suspension
- Not bothered on looks for purchase

Feedback...

- Liked the sturdy and rugged character of the HumV and would like to retain that character.
- Quality issues like peeling rubber rims, charging cords etc
- More charging stations
- Waterproofing
- Easy to clean

Required additional features

- Need additions like crash bar,
- hook for clothes,
- Saree guard,
- Clear battery indication and
- Distance that can be covered with available battery charge.



Results of field survey

Cost :

Hum-V costs a lot more when compared to the expected Rs 20 to 30k price tag

Looks :

Need to be more “stylish”, “fancy”
It should look like company made bike

Recharging issue:

Recharging time should be reduced

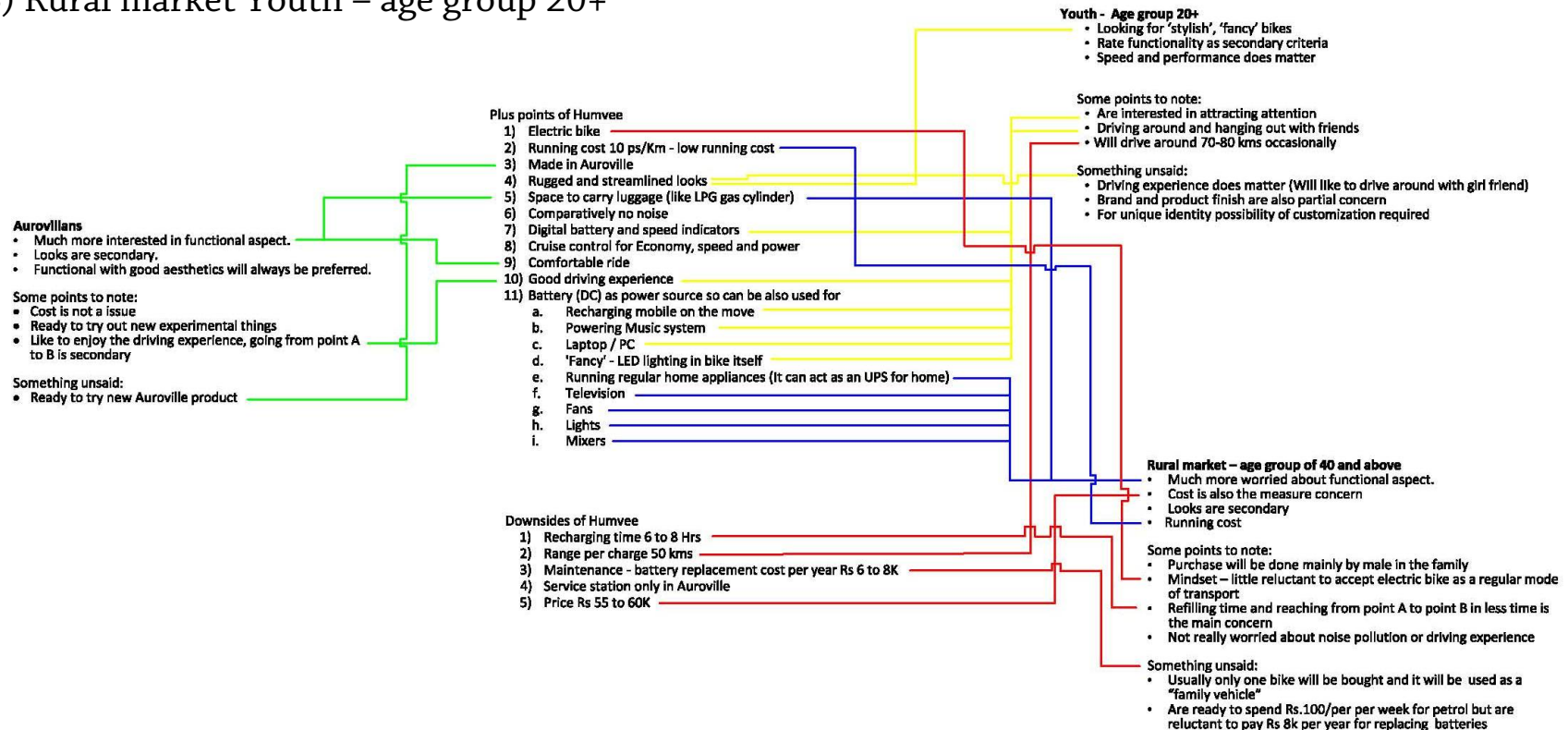
Vehicle preference:

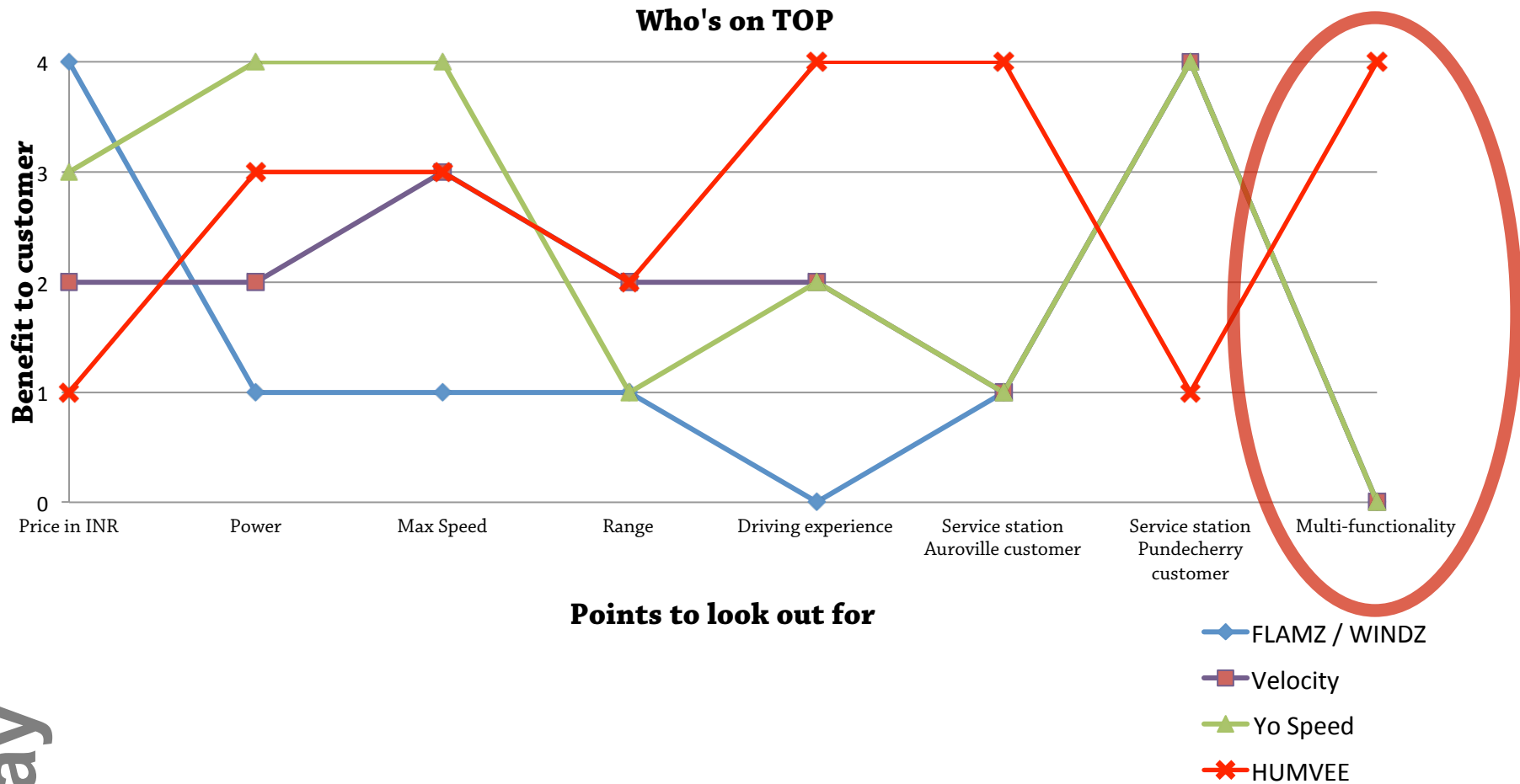
Petrol bikes are preferred because of easy refill
And need ‘more’ out of vehicle for which they will spend 20 to 30k.



Three target users ...?

- 1) Aurovillians
- 2) Rural market – age group of 40 and above
- 3) Rural market Youth – age group 20+





Design brief

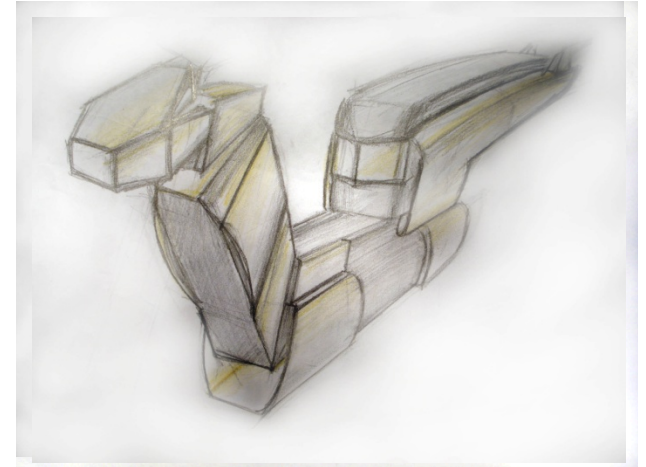
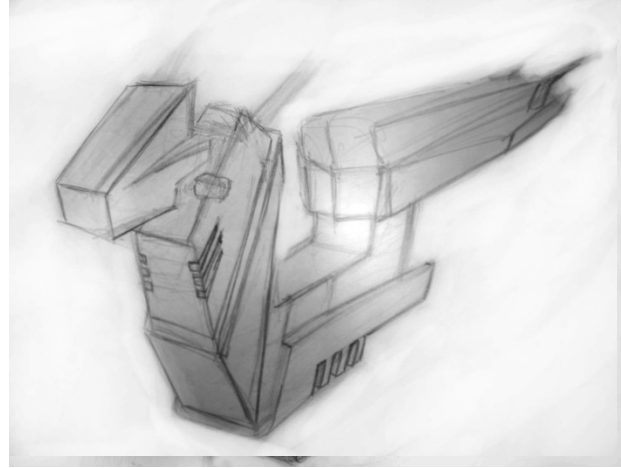
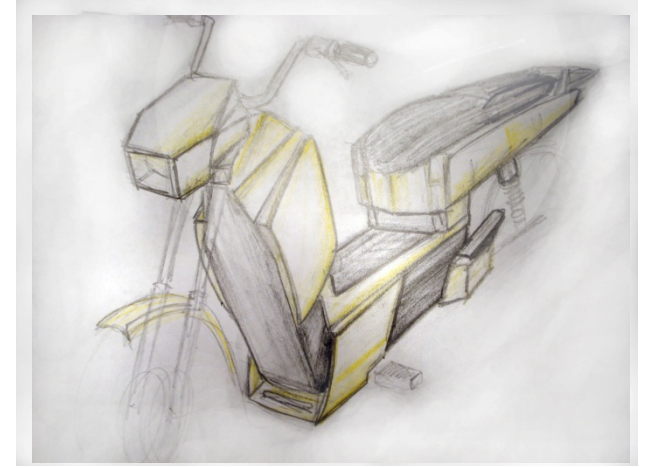
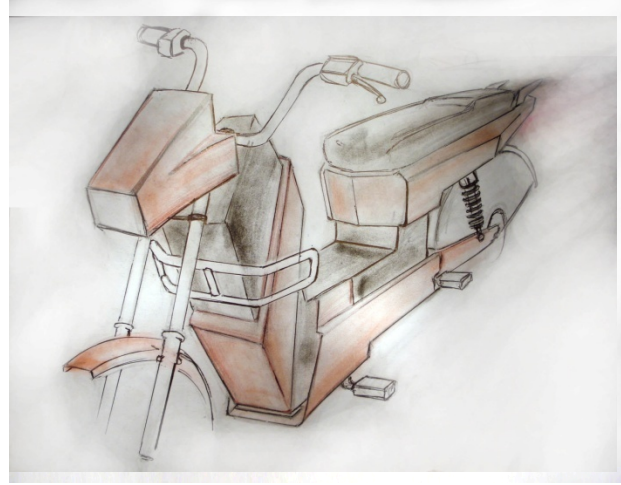
Styling of Electric bike Hum-V, with the existing frame for

- 60 bikes as production target
- Half of them targeted for Auroville users and rest as to be sold as **Demo bikes** in different parts of India
- Targeted for environmental concerned users
- Price tag of around Rs. 50k to 55k
- The functional aspects like vents for cooling controller should also be addressed.

Other conditions

- To be designed for functionality of rural Indian market
- Body work to be designed for handmade production for this lot

Sketching and renderings





Mock -up

Kamlesh Sawant

IDC IIT Mumbai, 07, June, 2009



Mock -up

Kamlesh Sawant

IDC IIT Mumbai, 07, June, 2009

Mock-up

Kamlesh Sawant



IDC IIT Mumbai, 07, June, 2009



Concept 1

Kamlesh Sawant

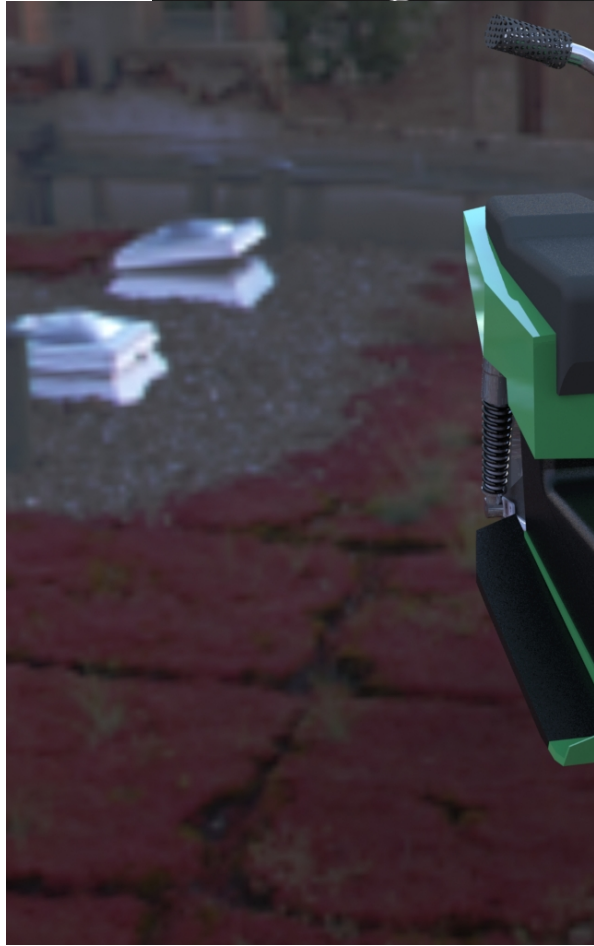
IDC IIT Mumbai, 07, June, 2009



Concept 2

Kamlesh Sawant

IDC IIT Mumbai, 07, June, 2009

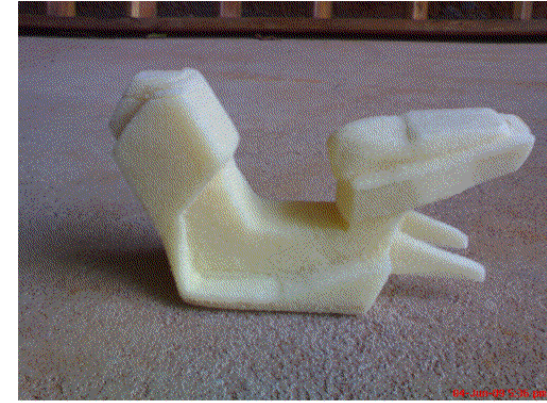


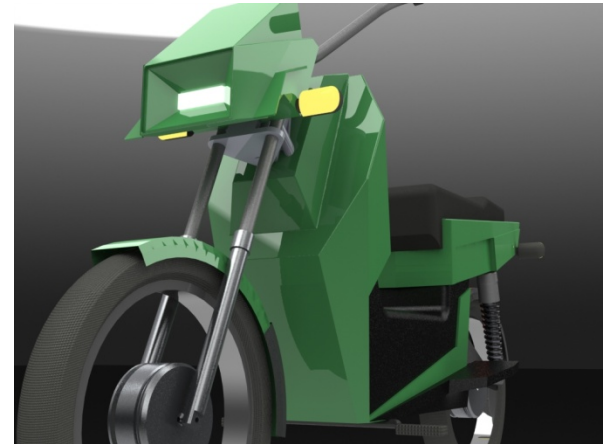
Concept 3

Kamlesh Sawant

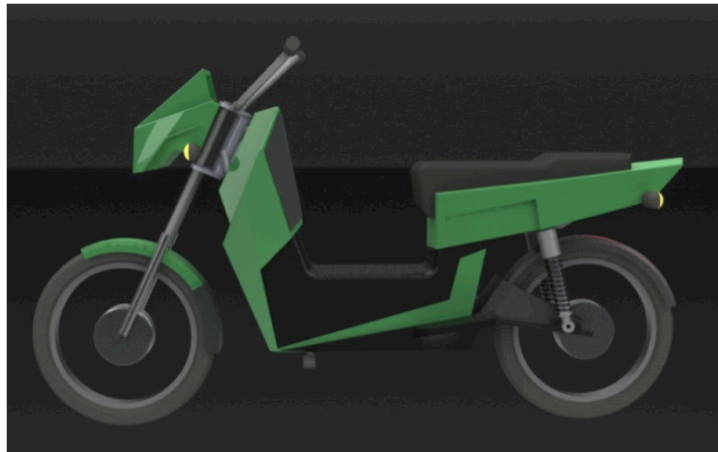
IDC IIT Mumbai, 07, June, 2009

Checking Concept 3





Concept 3 – refinement



Mock-up
1:1

Metal work starts

left
Days
06



Metawork starts metal brackets



'Invisible' screwing



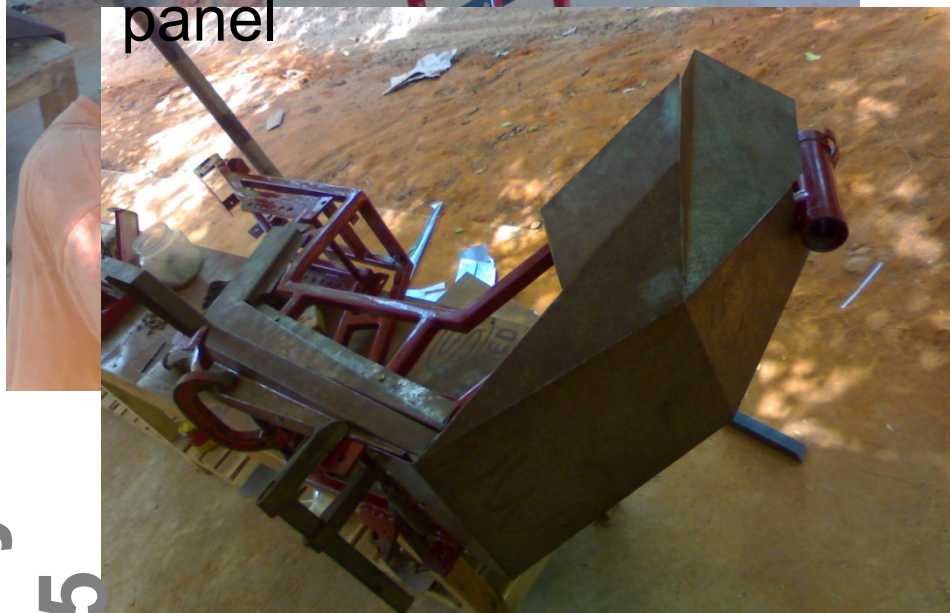
left

Days
05

Days left
05

Mounting

Step by step,
completing the front
panel



Days left
04



Started working
on side panels

Days left

03



A fresh beginning
with new flame



Started working
on side panels

Days left

02

A fresh beginning



‘Back’
?

Days left
04

Drilled deep to get
that hinge working



‘Back’
?

Days left

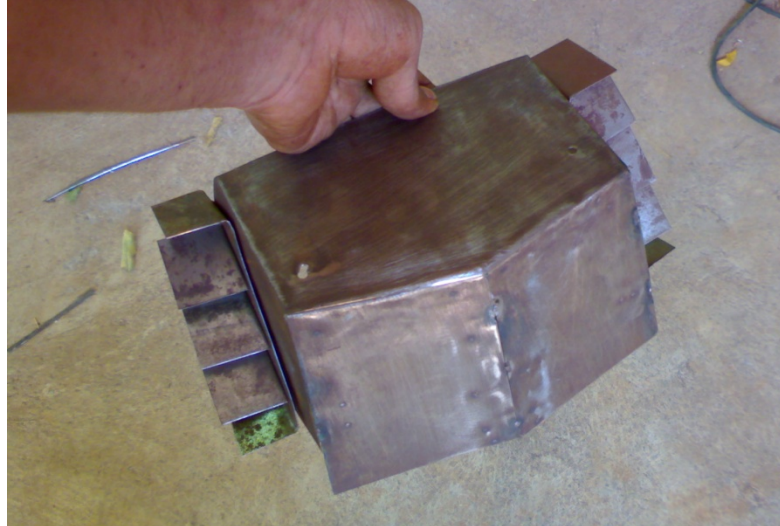
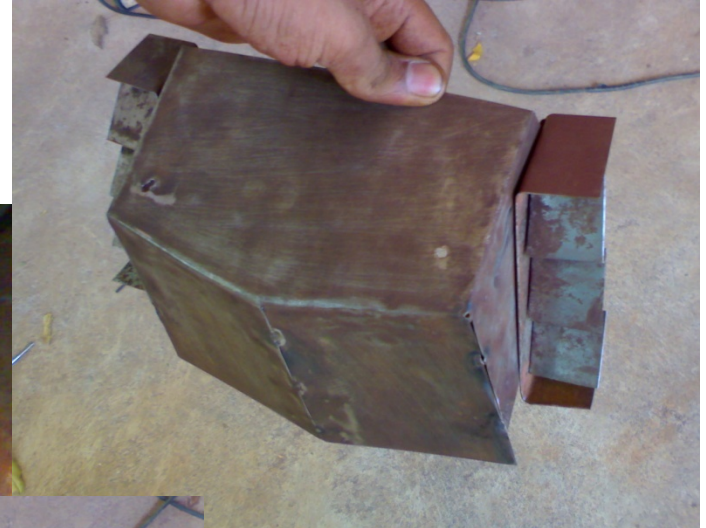
03

Drilled deep to get
Getting it covered
that hinge working



Getting it covered

Giving it a style



Doing it with a gun

Giving it a style

Days left
08

Days left
07

Fooling around on
last SUNDAY

Just pretended to
work



A well thought design mistake

Days left
06



Sanding... literally



Days left
05

Assembly started...



Days left
03

To 'SEAT'



Days left

03



Aaahhh....
That first coat of primer

Days left
02

Burning the mid night
bulb



Days left
02

Colors all
around to start
the day



Hmmm... just
my breath

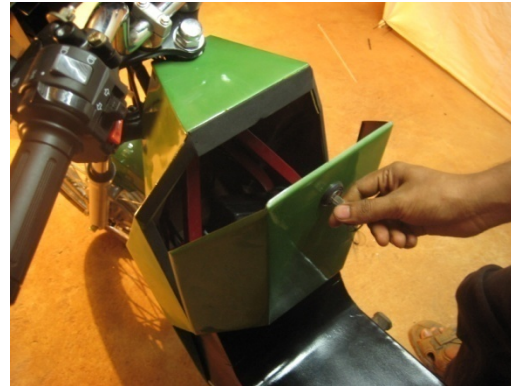
Where's the
hinge?

Days left

01



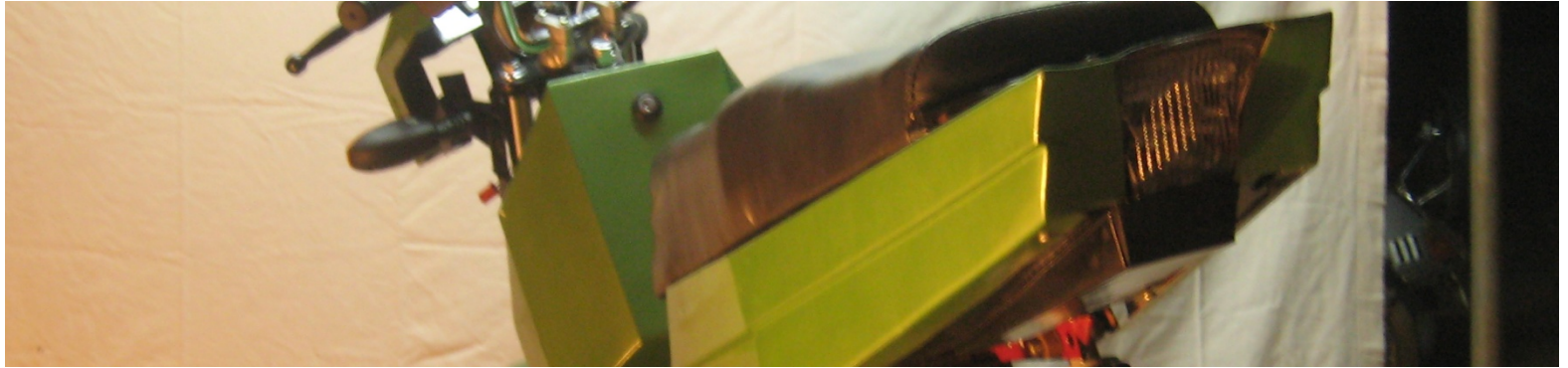


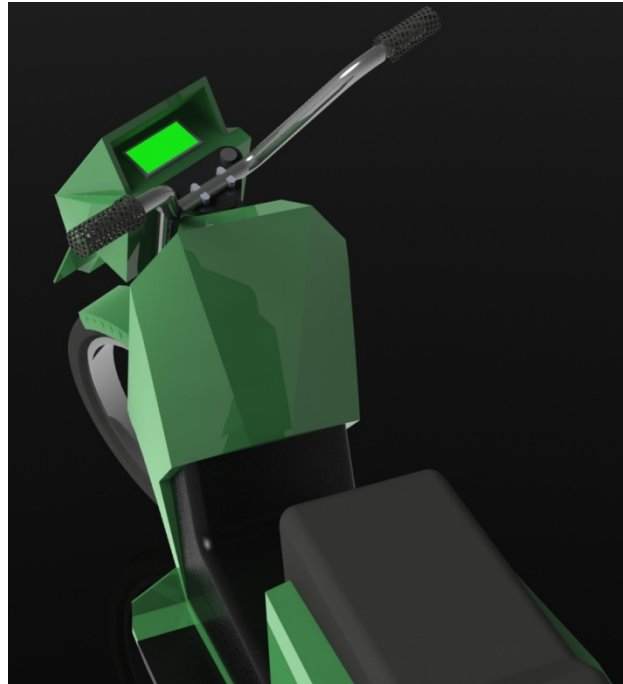














Days left
00



Thank you... !