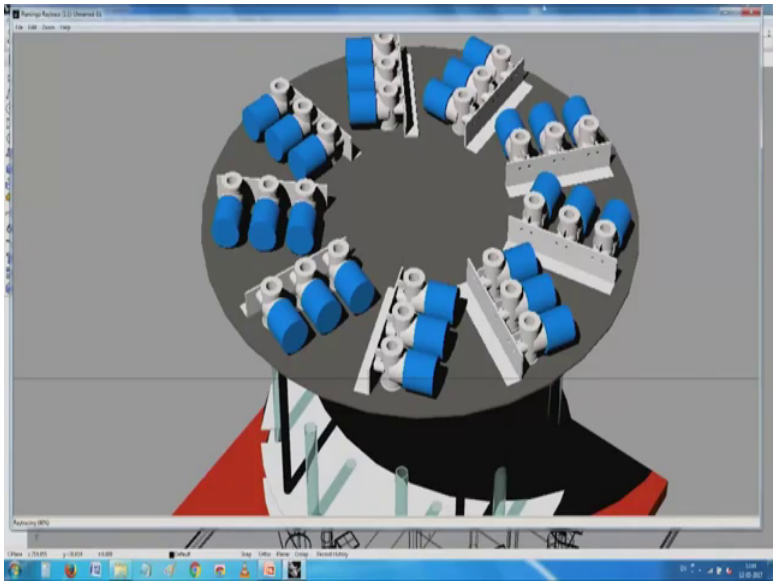
Enclosure Design of Electronics Equipment
Prof. N V Chalapathi Rao
Department of Electronic System Engineering
Indian Institute of Science, Bangalore

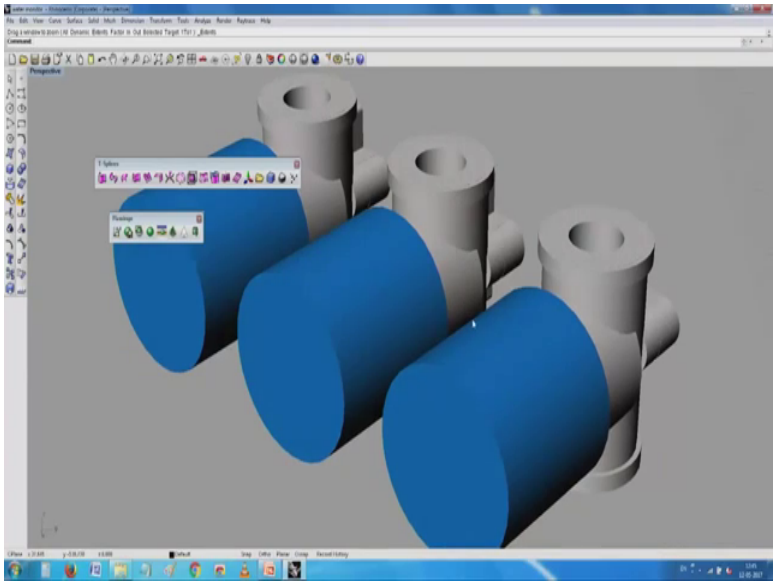
Lecture – 53
CAD Sample Example

(Refer Slide Time: 00:17)



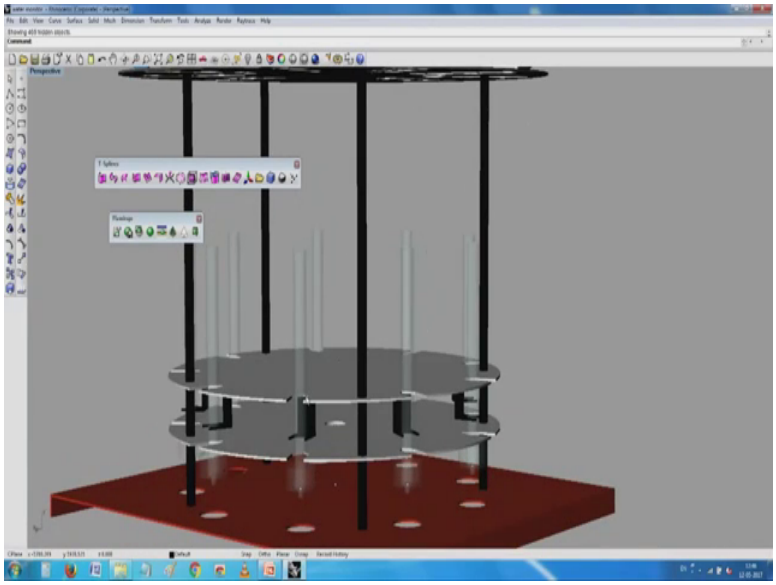
See in this, it is very complicated remote water we call analyzing device. So, we see here.

(Refer Slide Time: 00:44)



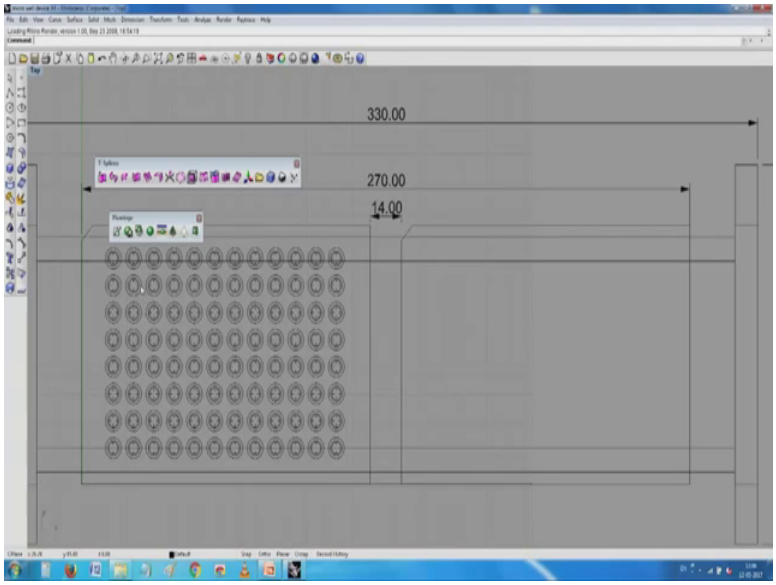
What I spend all my; what you call energy was only spent on this detail, perfect, actually it is nothing, it is a series of primitives in which I have a solenoid there and then I have a reasonably accurate representation of one of the walls and then finally, when we built up everything, the first time, we had make it, it took time. Now I have a nice system by which I have added those things to see how many can be fitted. So, there is a very what you call complicated pippiting and system and things like this are not just pure hydraulic or pure pneumatic or pure knitting the combination of application which is required for various things and electronics. So, in between there is a sensor which has been made separately.

(Refer Slide Time: 01:56)



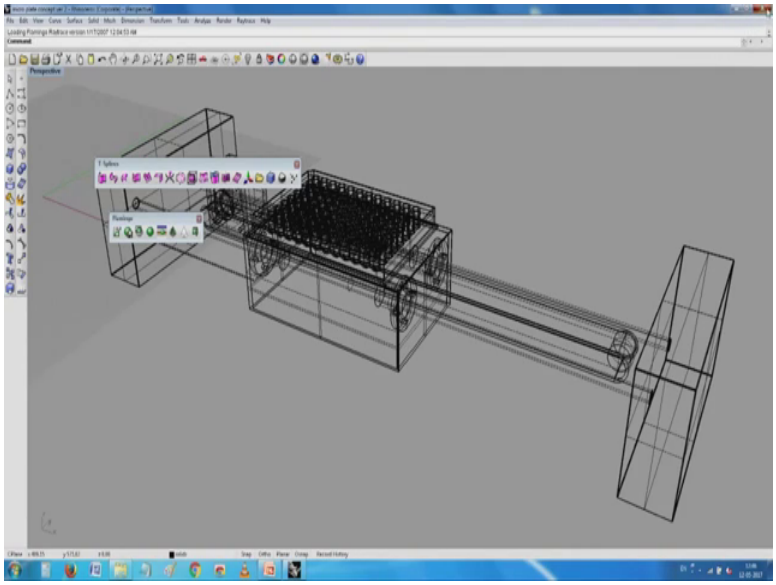
So, which does not show here. So, we end up with beautiful seen here this is the starting point for the micro weld device.

(Refer Slide Time: 02:14)



So, the amount of depending on where you place various features, we can optimize the layout, oh, this you have seen this already.

(Refer Slide Time: 02:36)

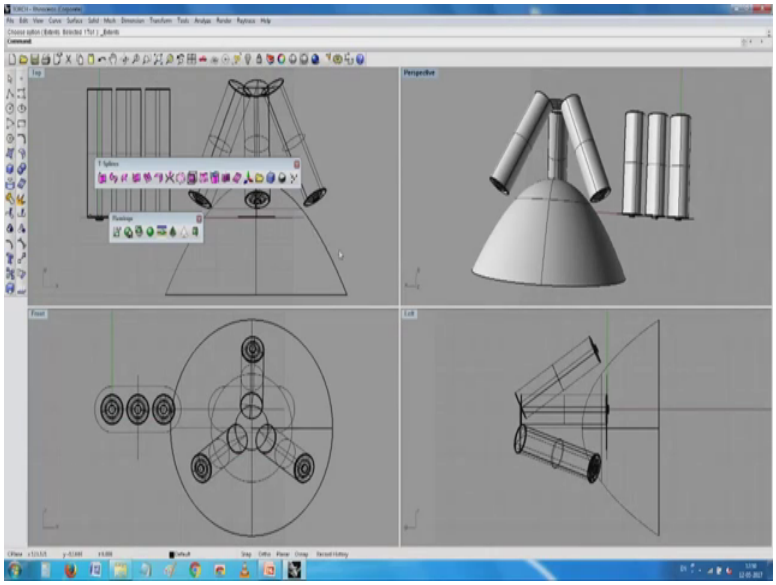


Now that the others things are all hidden, I will see whether it will be able to regenerate this feature anyway, its self explanatory idea is we wanted to make sure that the other things are all kept in sub light and here the some other device acts the various; you know things on to that reagents and the end get lost the cover and after the thing is over after the basic reaction is over we can get it working.

So, I feel it is worth a trouble. So, it is generating slowly and now have a look at it intentionally, here I have not add textures and colors, but we have beautiful working units like this which can be easily done in case use cad concepts.

This is a student exercise, I have been giving to children, registrants to I mean sorry for the children; the imperceptive registrants to or courses saying make a torch.

(Refer Slide Time: 04:28)



You have every possible torch and still know may be you need to make one this has been given as simple exercise saying in the front we have this dome which is basically an ellipse.

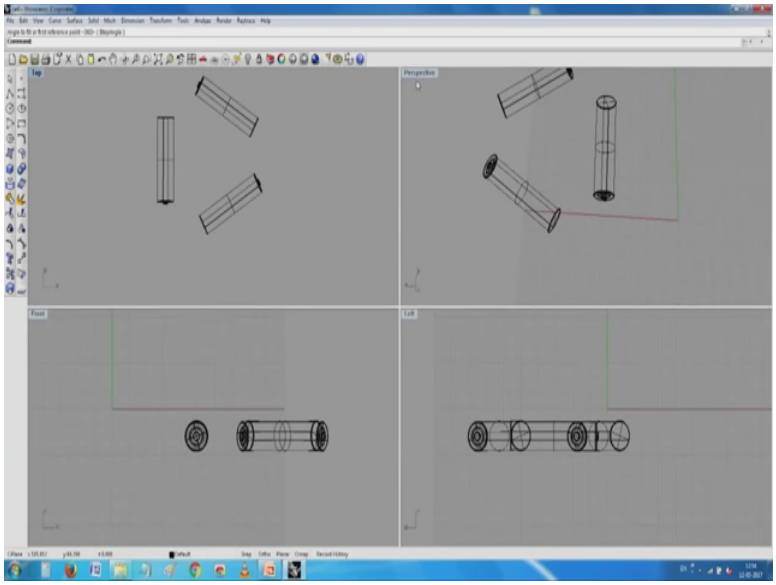
So, they typically if you have a; I am sorry, it is not an ellipse, it is a reflector which you know has the necessary properties. So, you have so many; I mean variants of it, the idea being we have the light emitter here and then we have a little bit of space at the back saying they will now attach these various; what you call cells and all to make a very nice compact device which works and which has that little that bit of novelty which will make people want your product. So, little bit of marketing nothing is the position which these products occupy in your mind is what mixed a product saying this going to give me a solution to my problem.

That is how we end up buying power drills and then we have this hammer and then also we have a hammer screw driver, which will also rotated make things. So, this typically things like this are very easy. So, that I can manipulate these features and then you see here, this is the parabolic reflector I was talking to about, oh, in 2 views, it looks like it has gone inside, but has it gone inside this; I notice that only a little bit of overlap is there. So, I can now play around; we trying to make them open out a little, I trying to keep them inside and then using this; one of these, see lot of detailing has been done; seen that that

small rechargeable what you call cell in this case probably a old nickel cadmium cell somebody took a lot of time and tried to create this properly, if you have this, we can always export it and do anything we want to do with it.

I will see whether the single thing can be exported opening the pack, again you have seen it I have it here.

(Refer Slide Time: 08:33)

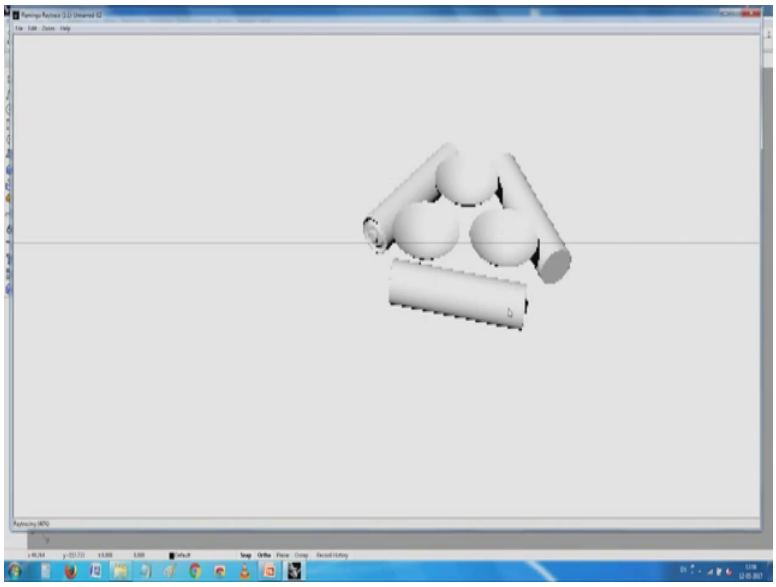


Now, little happy that has no failure in my demonstration. Now I go around here and see what best I can do with it, whether I am sorry; may be on the top; starting in the top may make sense, see in this I have a cell now which have started like earlier. Now I see if I can play around a little with it and make it different from what I did not ended earlier. So, I see whether I can aerate in a polar fashion.

Now I have got the all cells in a flat position and then I can add the parabolied reflector in the middle or just in the now that things have moved little, we do not need any of those things anymore; I can now try to make a torch or anything in which I have a 3 LEDs sitting in the round things, in this package, the original cell which I have made is still it still holds. So, I will see what best I can do; I will try put them close together and then; see whether I can fill it up with one minute.

Now, within the circle; I have a managed to put 3 of these cells. So, if I see here, I will notice that have nicely those things 3 things sitting here. Now I see if I can add small in my case and to solve a cube torch except that; it uses that naturally occurring what you call led I think it is one of those white LEDs which come with these things.

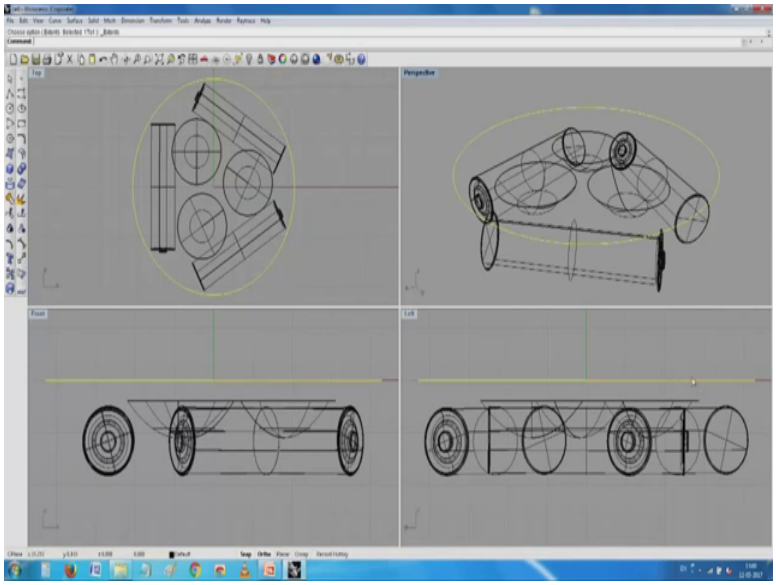
(Refer Slide Time: 14:33)



Now, if you see here, while it looked little as if these things are touching, now I see carefully here, it is possible for me to play around and make these things planar.

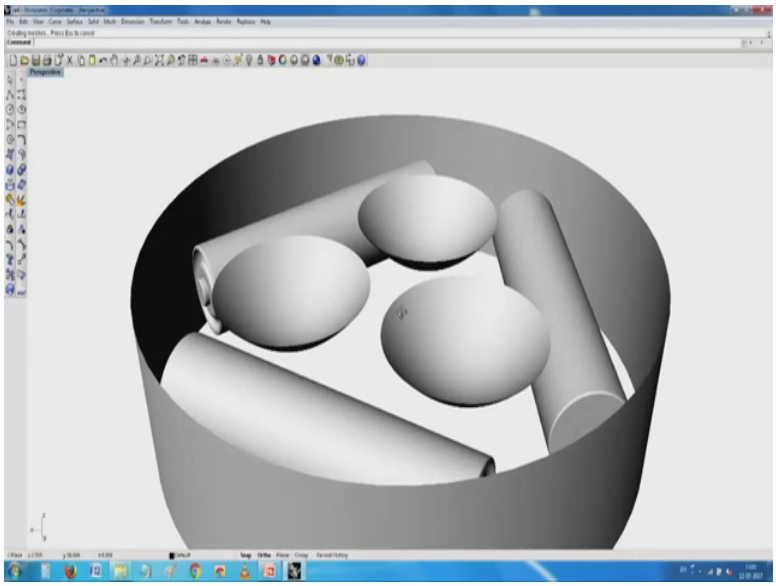
It is easy for me now to enclose it in a cover and then try to make a torch and I can also make all these contacts and make an electronic circuit and which all of these I just need to insert the cells into that I have probably a small key chain torch, I have this torch with me in my collection, I try to bring it.

(Refer Slide Time: 15:44)



And show it to you and the ones who have this; this can also be used probably; you have seen them on the internet devices like this are easily available I will see whether I can make it.

(Refer Slide Time: 16:51)



My torch is getting ready; see in that because of some technicality was not able to extrude this line, I will try to see if I can do that now. So, this is where I said we need to have the what you call various handles and all that see my essential elements for this are getting

ready its possible for me to join them together, have them intersect and make a small product.

Since I have this product, I thought before showing you the product, I will try to show you this and my own suggestion is go online try to buy a student version of this software, in case you can afford it, try to use some whichever is available from you from your what you call enterprise or anything. The particular one which I have been using are earlier licensed software.

So, otherwise you can buy or you know get things at a reasonably good price, it gets a little what you call, it is pointless unless you try it yourself. So, my suggestion is please go back and try these whatever little online resources are there, full 3 D solid modelers are also available, you need to try it and then stuff which is made here can easily be exported online and then you can make beautiful; what you call objects using rapid proto typing. So, I will take a break at this point will meet again.

Thank you.