

**System Design for Sustainability**  
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**Lecture – 34**  
**Co-design Session**

Hello everyone. So, in this video we are giving you a demonstration of how to conduct a Co-design Session. So, this will help you as part of the assignment seventh solution. So, we have couple of students with us I will shortly introduce you to all the students. So, as you have seen the explanation of how to conduct a co-design session I already have a session plan along with the time for you.

So, I will start my first part of the session which is brief that I will give to my participants. And I have planned and approximate timing of 2 minutes for doing this. So, here is all our participants shortly they will introduce to you each one of their names, and other details. But let us first start with giving them the brief why we are here together.

So, hello everybody welcome to this particular session thanks for joining us. So, today what we here for is so as you all know being part of the IITG community, we are a group of about 10000 people living in the campus most of our students. So, around 6000 of them we have faculty members, their family staff, their family, and many others who live in the campus. There are also every day we have some visitors.

There are some staff members, faculty members who live outside the campus. We have other say for example, gardener's, maids who come to the campus every day, commute inside the campus, we have visitors like researches from other institutes and so on. So, as you know our most common mode of transportation for all students is bicycles. Faculty and staff they also do have some of them, their family members have bicycles.

Because most of them use more drive vehicles. In terms of commute we do have public transportation like the 5 e rickshaws which you can call and get over here. Apart from that you also have a bus service in the every hour which shuttle between your hostels to the academic complex. We all know that the e rickshaw services they work only during a certain time of the day. Also the bus service they are meant only for the class hours and they are very very crowded.

So, far in our campus we have thought that why not let us discover and discuss and find the opportunity for a bicycle section in service. So, today we will all try to design such kind of a bicycle service sharing service for our campus. So, with that is what we have gathered. So, it would be great if each one of you can now introduce to our audience, your name, in the hostel that you live in, the branch, and other details. Then how do you commute daily to the campus. You can also tell us about how many times do you come to the academic complex and the way you travel and any challenges. So, we will start with this.

Hello my name is (Refer Time: 03:47) I am a first year student of MD's and I stay in Lohith hostel. I basically commute using my bicycle and my travel includes hostel to the academic building and sometimes I go to the library the market complex. I usually and the travelling about 3 to 4 times and doing to the academic building during mostly lunch hour, I have to go back. And I travel about 4 to 5 kilo meters of my bicycle every day.

So, each one of you when you are telling about the places from where you commute as well as the distances and all the entities, it will be great if you can also take some notes regarding whatever you are talking. So, yes we will start this.

Yeah.

So, I am Vishwa Prasanna, I am a first year B.Tech student, I stay in Brahmaputra hostel my basic means of commute is a bicycle. So, I move from my hostel to the academic building from there to the library and to the sack and so on. So, it takes around 3 to 4 commutes from my hostel to different places in a day. Other than that I may go to some other place say for eating somewhere. So, that happens rarely once or twice a week and it takes approximately 5, 6 kilo meters in travel.

Hello everyone I am Shagun Mascara, I am a first year student of BD's. I live in Dhansiri hostel which is approximately 1 kilo meter from the academic building. I have to commute every day of 4 times from academic building to the hostel and then apart from the academic building I go to the sack, I go to the food court, I go to the sport centers. So, that usually adds up to 4 to 5 kilo meters per day of commute my way of commute a cycle bicycle.

Hello everyone my name is Rohan I am a master of design student in IIT Guwahati, I live in Brahmaputra hostel which is the one of the farthest hostel from academic blocks. So, it is a around 1 kilo meters from here in my daily commute I usually travel to the academic block, library, student activity centre. So, overall the distance of the commute takes of the whole day takes around 6 to 7 kilo meters for me so yeah.

Thank you so much for joining us. And for the introduction that you give so once I have got the group introduced to each other. The next step that we will try to do is built the group, we will take around 15 minutes in this particular session, it is always good that you time each and every session, and try to stick more or less to that time.

So, what we will do now is with each one of you we will start discussing. So, in during your daily commute to each one of these places what are the challenges do you fix? And how do you think you can solve those challenges?

So, mostly because I stay in Lohith, Lohith is a very new hostel. And the first thing that comes to my mind is there is no availability of proper parking space for the bicycles. So, mostly all the bicycles parked in the corridors of the ground floor section of the Lohith hostel.

Another thing what we I go to the market and there is a gate at which we have to park a bicycles and then walk towards the market outside the campus. So, there is a huge problem of parking because there is no particular space, there are some water river kind of very small regulate that (Refer Time: 07:35) of the gate. And because of that there is a tinning bridge which you have to cross and the road is not very constructed in a constructed form.

So, there ends up being a lot of mud during the rains and the main road that connects the Brahmaputra hostel to the other hostels, it is it has a lot of heavy traffic. So, the buses, and the ambulances are other vehicles which pass by they face a certain problem. Even bicycles the whose they are faced with the thread of heavy traffic and that causes a lot of inconvenience.

Another typical spot that I visit is the market complex. So, market complex when you have to go towards the market complex which is a treated the other end of the campus gate. And we have to cross the hill lock.

So, we have to climb the slope and climb it down again to reach there and mostly we end up taking the bicycle in our hand. So, the purpose of having a bicycle is not necessarily served and another route that goes to the market complex goes to the faculty residency. So, it is kind of inconvenient, or kind of complex procedure to go through that.

I think yeah During the rains the bicycles because Lohith does not have a particular stand, those bicycle which have park outside they tend to get rusted and it is very difficult to get to those because the road is still under construction.

Ok.

These are some of the pin points that I think I can highlight.

Do you fine any challenges in the sack?

Yes sack also is a new constructed building. So, the parking is kind of open at this movement there is no shelter for the bicycles there. So, yeah and the roads also connected to the bicycles most of the roads. In fact, there are many more roads which are constructed, but water gets to water tends to get locked and those areas.

So, even it is a problem for pedestrians as well as those driving by the bicycles, the fear of splashing and soiling the cloths is very high. And even academic complex I feel that there are 4 cores, but the bicycle parking a situated the main park is situated in front of the core 1 and core 3. So, most people tend to park there and the capacity is not enough for the students. I think and that tends to in the rush hours, we cannot find the proper working spot. It is not shaded so, either face the problem of having a lot of sunlight, or lot of rain which can damage the bicycles.

And what about the outside the campus, the faculty gate?

So, we are not allowed to take our bicycles outside the campus without registering or if we do not have a sticker of from the security guards. So, we either have to drop them at the gate and even at the risk of our own, or the security. But they do not actually have the time to look over bikes. So, then it is a problem to take the bicycles outside the campus.

What would you like to add (Refer Time: 10:44)?

I am I would like to build on his point during monsoon season. So, it rains a lot and then the roads are not you know they do not have a good draining system. So, the water gets logged, and when we cycle the mud from the ground it just flies off because of the tires and falls on a face and falls some one behind us that causes a lot of inconvenience. More over since construction is going on in some of the hostels. The roads that are leading towards the hostels areas, they have mud piles on the sides. So, those mud piles cause a lot of accidents. So, many people try to avoid that and go to it is a side and that mud pile just decreases a visibility of the incoming vehicle.

So, there is a chance of collisions. There is a chance of slipping and falling. So many such cases that happened so, that is one thing and yeah and other than that the cycle if we I take it for a long distance ride outside the city, so for that I do not have any much problem with the cycle.

Do you also go round cycling trips inside the campus?

Yeah inside the campus I do good, so that is also we going groups. And it involves undiscovered places which if we a design discovered. So, we go there and even the same problem exists there though it rains a little it is so, muddy that it gets really sticky. And your cycle just gets stuck there.

What would you like to add?

Building on their points again the rain is a take problem with cycles. Especially because the rain makes a ground really muddy and then parking space is outside the lecture hall, and the library especially they do not have concrete ground for the cycle parking. We will park it on the lawn, and then the stands they usually take into the ground, because it is soft and then they tend to topple over and then there is a domino effect and all cycles topple over. And then if you want to take a cycle you have to remove all cycles. And then get it out so it is like a big process.

So, that is one of the problems and library and outside lecture hall, so I would suggest if you could concrete it over at least provide some hard footing to. And the not only that is another problem with lecture hall parking ground, that it is a people usually park it at front of the steps. So, there is no way that you can there we have to maneuver yourself

from between the cycles and then find the steps to the lecture hall. And then if you are late your probability rushing and then again the domino effect.

So, then that is one of the problems and then as I said the puddles. The there are many puddles form. So, when it is raining you either have you have few options on how to get where you one over you can either call an e rickshaw, you can decide to cycle through the rain, you can cycle with an umbrella, you can walk through the rain walk with an umbrella. And then no matter what you decide it either effects you by your own actions, or it effects you by someone else's actions.

If you are walking then a cyclist will dirty you, if you are cycling then you will get dirty, e rickshaws only safest thing. But then we have only 5 e rickshaws and when it is raining it is an high demand, so the probability of you getting one as very low. So, then that is the problem with rains. And when you have your personal cycle and people when you have a personal cycle they have been loss of complaints or cycles getting stolen.

And I do not know what they do with it. Because inside the campus may be they sell it outside, but there have been a lot of complaints. So, I think if we introduce a cycle sharing system then that can be stopped. Because they have every ones property, it is every ones properties, so no one will steal it. So, I think these are the main problems in it I will think.

What would you like to add?

I feel that there are many more cycles then the parking spaces available like in every hostel basically. So, what in our hostels we do like a because of rains and stuff the cycles which are kept outside get rusted and get damage.

So, many people keep the cycle inside the house corridor of the hostel. So, that locks the corridor of the hostel and also if cycles falls inside the people might get heart due to that. So, this is one big problem, also while we commute during like morning as when the classes start. So, many people cycle together. So, it locks the road.

And like if a vehicle is coming from the opposite direction it they may cause accident. So, this is one problem. Also in the evening also when people come out of that hostels,

and roam around the lakes. People usually tend to park their bicycles, at the lake side itself.

So, there is no dedicated bicycle what you said? Bicycle tracker something where.

They can keep the bicycle. So, this is the problem which I think.

Yeah.

And other point if I can add is.

Yeah.

The roads are meant for the bicycles primarily because of the no vehicle policy. But the other vehicles that plan on the road or the buses the institute buses, and the ambulances, and the e rickshaws. And there is no speed limit as such. So, they pose a green thread to the pedestals as well as the bicyclist. Because as the many of the common roads or the main roads which have the morning rush or crowd.

And another thing is that the capacity of the parking large outside library, or the lecture hall complex, or the new sack building is not considered according to the capacity of those buildings actually. So, the students who visit them there is lack of parking space overall.

Ok.

Yeah.

And another point at (Refer Time: 16:31) add is that people usually buy the first year writes the new students. And usually they buy their cycles from the market put up in the campus and then they all of the same cycle. So, they all are many people have the similar cycles and there is a lot of confusion as to which is whose and also all the vendors they sell the same kind of locks and all. So, they all can be open with the same kind of key.

So, that is why the steeling of the cycles just increases this. If you just try or key on someone else's lock at the, so high possibility that will open; so also many cycles of from the bundled because students they buy or they buy a second hand bicycle or a new one when they come in the first here. And especially master students we only he offer to your

some most of them thing like should I have spend like 5, 60000 on a new bicycle or should I spend.

Just half of that and get a second hand bicycle. And the reselling or the disposal with work of the bicycles after the second year is not taken proper care. So, kind of there is lot of junk on the campus. Right now and the cycles are rusting if they could be used in a way which is which could instead of them rusting and the material (Refer Time: 17:44) over the years.

It could really benefits amongst the students, if they could be maintain the circuit literally (Refer Time: 17:50).

Do you face any problems when you park the bicycles near the core one, or other places of the academic complex, because the security keeps on rearranging your bicycle. Yeah the major problem during the near the academic block is there are there are too much cycle. So, even if a pushes like even if a cycle is get pushed the all the cycles fall down.

So, like when you are standing it you have to arrange it yourself because you are looking at the event. So, it becomes a major task for students like they have to go to do the biometric and things. But yeah they have to pick them up because it is their responsibility also to pick the cycle.

So, this is one thing I have observed. Also I have seen my friends struggling to find their bicycles because as you mentioned the keys of the locks are similar because the cycles have bought from same vendor. So, one incident happened is my friends bicycle was taken away by another person. So, she was roaming around the campus finding her bicycle. And she got it after like almost a month.

[laughter] ok.

[laughter].

That happens in a case of locks as well as bicycle.

Bicycle, bicycle.

Bicycles are also identical because.



Yeah.

You buy that from the same.

Same place yeah and when you are parking in the academic complex. So, usually either late or in a rush somewhere, so you park the bicycle in the there are strips.

In which you have suppose to park the bicycle and then there are walking strips where so that to. So, that you can get your cycle, but in your rush which is park at outside the parking strip and then the security guard comes. And he picks it up and takes it somewhere where there is place in the parking strip. Then when you come you look where cycle you cant find them.

And then similar cycles or all around see you have to go check each and every cycles and which is yours so.

Ok.

It can be time consuming.

So, many times that happens that few of the cycles are part with small space between them which is too much for too much for Government percent to get it. Go, but then to little for commodity another cycle.

Ok.

So, you have to individually lift on the cycles.

Yeah.

And shift them together. So, that you can commodity yourself in a cycle. So, that is a really difficult task plus when you try to remove it your handle bar. Final get stuck on one of the other cycles. Handle baths are and then it reserves again it. Gives a push to the cycles and falls on both sides. And when you are turning your bag hit some cycle.

Ha.

(Refer Time: 20:11).

Ok. What about like when you are commuting on your bicycles you are also carrying simple luggage with it. What are the challenges that you face?

So, as design students we are expected to carry a 3 of larger size sheets. So, you either have to roll them or we have to carry now very large file which is not possible to be carried on the bicycle. So, on some days especially rainy days to protect those portfolios we have to walk. Or we put them between the bag and the like the bags handles these strips. And one some days for professor he is not happy, if we fold them or roll them because that might damage the hard work and especially if you are carrying a 3 D model.

That is an impossible task. So and especially in the rainy season you have the fear of them destroying and destroyed.

Ok.

Another thing is even if you manage to take your whatever your assignment of one hand and control the bicycle on the other. It becomes really difficult after while because there are, so many people going in groups.

Yes.

And they do not move fast also there is goes to they need talking to each other and then they dragged and random pattern then you cannot even predict where they able to go. So, it becomes very difficult to navigate through them and.

Ok.

Whichever you want to and design students we have lots of projects. So, like yesterday I had to carry my project it is a 3 D project. So, I have to cycle like this.

And then while parking especially in the unsarry you have to go with and then this like a sharp right. If you want to go it and park it, so then turning that with one hand and there is. Just it is juggling both of them it gets really hard and.

Ok.

Even the like some of the Professors are really strict about keeping their assignment neat and clean and there is no way that we can put that in our bag and maintenance neatness.

We have to carry it in a hand, it is just raining, it is a disaster. If it is not raining, it is still a lot of work to carry it in (Refer Time: 22:15) it soon ok.

Ok.

In case if a many plan to take care of the it is not very convenient to find it at the right movement. In the rush hours especially that is very interesting very good. The main challenges actually the main challenges like if we have we have to carry A 3 size, or any project and on top of that it is raining. Then we have to carry in umbrella also.

Yes.

And upon that we have a bag which are laptop inside. So all this delicate stuff, we have an we have to go with cycle.

Yes.

So and also some (Refer Time: 22:47) said that we are it is difficult to find e rickshaw during that time so to commute during the time becomes really major task for us.

Ok.

Yeah.

And we cannot even chose not to take our cycle.

Yeah.

Because it is already in the academic complex.

Yeah.

And the taken back.

Yes.

So, say for example, if I tell you that imagine an ideal scenario of commuting in the campus. What will be a metaphor for doing that? And why do you think of that metaphor?

Metaphor as in comparison to some ideal (Refer Time: 23:23).

Yes.

No matter how out of the world is.

Yes it is can be as out of the world as possible. In that case I would prefer Harry Potter blooms takes to just lie in the campus.

Ok.

I know that would cause a lot of air traffic, but then I think yeah why not of line carpets perhaps.

I will get (Refer Time: 23:43).

(Refer Time: 23:44).

Because the travelling on roads and especially carrying all those things. And the speed and the amount of effort that you had to put then like there are some uphill roads. And then in that case you really get tired by the end.

Taking actually these the department and your I will called these soaking wet newer his friend. And yeah also like if you think about grooms sticks why not this just apparent a (Refer Time: 24:08) totally board.

Ok.

Like I will ask my spoke to beam myself into the classroom director. You know we can use Doraemon any where do it.

Yeah.

Yeah anywhere do it we think of.

Could this?

Whatever place we are going to.

The (Refer Time: 24:25) after is well.

Yeah (Refer Time: 24:26).

(Refer Time: 24:27) you get on your hair we can just (Refer Time: 24:28). Now trouble of going up will and that market complex

Yeah.

Very very interesting made of us.

So, now you can see that we try to do group building exercise. We try to discuss some challenges, when they start talking to each other and try adding to on to each other's point.

So, you can see group dynamics is building up the metaphor exercise also further helps to build a better group dynamics. They get into the imaginative mode of thinking and little lighter movement forward the some laughter. And some smile always helps you to give a good refreshing break area co-design session.

So, now we will go to the next part of this session which we call as seek new understanding. Again I have also time this one we will have around 15 minutes so let us to back the group. So, we already have a good idea about the places that you visit, also kind of the frequency with which you visited the challenges that you face. But till now you have been talking about what are the challenges you fix?

Can you think of the challenges that you are friends are facing? Yeah so few of my friends that they did not buy a bicycle during the first few weeks of joining IIT, and now the face of problem of not reaching one time.

We have biometric and till to be made in the morning and there is a closing time, but they have to struggle and run and there is always a possibility of sleeping down for the injury (Refer Time: 26:07). And not being able to punch or time is the worst few.

So, they usually take up auto rickshaws or the e rickshaws or the they have two like really run towards that there is important. And most of the hostels are at least one kilo meter away from and so it takes up to 10 to 15 minutes for there.

And especially that is when the auto rickshaws are available. But during the afterhours like after 7 or before 8 am or after 7 pm in the evening; they cannot find in a auto

rickshaw or for that matter in case of an emergency it is when difficult for them to travel along with us. And that basis a lot of time and in case of a an emergency could be a really life threat being situation.

Ok.

So, many of my friends have either second hand cycles, or old cycles or one such a become rusted because of the rain. So, that creates a very very big problem that is hard to address, so that problem is the effort that is required to pedal the effort that is required to commute. Because the change are rusted it becomes very difficult to move the cycle forward.

The brakes are also really weak. So, what happens is? If suppose we have to stop suddenly they not able to do so. So, they need to accidents and breaking go ones and falling down.

Ok.

All sorts of things; one of my friends actually had a lock that the vendor gave while my from the campus market. So, what they do not actually give the tube lock, they give the chain with which you actually put the lock and key down. So these locks they first of all as I said it is very generic everyone has.

The same and another is because of the rain it got rusted and it got stuck. So, she could not open it and she had to go to the locksmith and get it broken and then she finally, opted for a tube change.

Because that there is more convenient. So, that is one of the problems that they are facing. And another is some cycles the quality is in as good as some other cycles. So, they get rusted faster.

And they so it is hard and they need more they need to get tuned up more amount of times, and they need to get fixed frequently and; that means, a lot of money and time. Because once you give it to the cycle shop we have to walk back and it is not close the cycle shop from our hostel at least is like one kilometer, or something's.

I think more than 1 kilo meter. So, we have to walk till there. So, it and especially if it is afternoon it is very hot. So, working in that is not.

Ok.

Very hot.

Yeah as we mentioned that we have to keep cycle in the cycle shop. So, like it becomes like normally in our routine we travel by cycle, but I have seen that when people keep the cycles in the cycle shop they have to travel by walking and or then the mode of transport which they have to discover it later, and they do not know it before.

So, I have seen people come late to classes because of that complaining that my cycle is in the shop that is why I came late, the another is a bit psychological, because as we mentioned the quality of cycle is let us just. So, cycle make noise and this thing, so people get frustrated because of it like my cycle is making. So, much noise I do not like my cycle. So, this is one problem that they face anything is that comes to your mine like all other friends of yours you know and they face a challenge.

One of my friends he we not well further long period of time and he and to be in the hospital some days. So, the only mode available to him of transport was compulsorily with the ambulance. So, if you drop him and pick him pick him up at his disposal, but I think as a part of a larger system solution. It is not a very feasible one because the entire huge ambulance has to apply for one particular person.

Also there are many small roads which connect to the hostels on which students walk a cycle and the ambulance has to go through the same road and they are always in the rush. So, they drive at very fast speed as well as on the other roads.

Ok.

So, people who are on the roads who may be job, or a cycle who might have put your once it is really risky for them to. Be aware of the ambulance that is coming from behind.

Ok.

And I think this needs to this address this well.

Ok.

Also one point I miss this sometime people tend to neglect that is [vocalized-noise in what condition the cycle is? If the air is not proper in the cycle people tend to neglect like it is a ok. I will go I will commute; however, the condition of my cycle is I will see it later.

So, what happens is? In this process they damage there tubes of the cycle and they have to pay more in the later period of time. So, I have seen people doing this is so.

Ok.

This is also.

So, what are the situations in which you decide to travel with someone? Say for example, you can are you coming to the academic complex alone or with friends. There are other places where you might go alone or with some. So, what are those contexts in which we are traveling with others?

Mostly I traveler with my classmates we travel in smaller groups. Based on may be project that get into gathers you usually (Refer Time: 31:33) 3 to 4 people together.

Otherwise the group of musicians that we travel from practice to the sack building we end up travelling together.

And many of my female friends they ask for company like I have to go the market complex that is kind of you know corner of the campus. So, can we it was a group instead of anyone going on is try to combine all you are combine those strips together same to as the same time when I have company as well.

So, in my case people who come from the side of my hostel like barrack. Like kamek. Those hostels are further away from Brahmaputra. They are connected with the same route that leads to be academic complex, so many a times we often made on the way and then we cycle together.

Ok.



And many of my hostel makes well I go for classes, well I go for any eating expiration outside, or any cycling expiration within the campus we go together. So, that we have company we can just.

Ok.

Say have fun with me depends upon the discussion happening for (Refer Time: 32:43). If you avoided discuss that we are meeting tomorrow we will leave together then we wait otherwise if I am late than everyone as usually go on. So, then I go alone and if I am going out and then I see someone so you like it together that is like that this is for the academic complex every morning. Food court and sack may usually travel together.

Food court and sack is actually not very far from my hostel. So, you walk to the sack and food court together and enjoy. And company and sports is bicycle with if I have someone I am playing with usually. If there is someone who I can go and play?

With then we decide to meet up on the court or on the way, so that.

Ok.

We can go to the court together and get so, I travel with my friends usually when we go to sack after classes when we hang out together that is the major time when we ride bicycle together another time is when we go to market complex because it is as (Refer Time: 33:42) mentioned it is a far away from or hostels then also from the academic block. So, if we have to go there a we have to spend our extra time. So, everyone thinks that we can travel together over there is a they can spend a good time as well. So, we can shop of it or whatever we want. So, and also after dinner sometimes we roam around in the campus because the weather is.

Good are in the campus. So, these are few conditions when we travel together. So, does your mode of transportation depend on you are travelling alone, you are travelling in a group and how does it vary? And you face any challenges at that time because of your mode of transportation.

It does depend on move you are travelling. Suppose we have to spend more time in the bus travelling the cycle is not viable option.

Yeah.

Because you just within the speed away to your destination. Walking will be the ideal thing. So, getting that time what we do is suppose we are bought into meet of some else, so we come by cycle to that spot. And we walk our cycles along with us. So, that is one context then which. The mode of transport changes from bicycle to (Refer Time: 34:51) ok.

Ok.

There is some times one of my friends who does not own a bicycle they travel by the e rickshaw. So, sometimes we just leave our bicycles in the academic complex and go with them by the e rickshaw, or we just go walk and come back walking and.

Ok.

That is how you.

Ok.

It depends on the weather too.

If it is raining then we decide what to do which if it is sunny then we usually cycle, so that we can reach where we want.

As fast as possible, but right now at this point of here and there are times when it is really windy, but not really rainy, but just prefer the rain. That weather it is a really pleasant weather. So, we prefer to work through a talking and you know music and all the new work to wherever you want to go. If when I rush and we might excite.

Ok.

But depends on the weather and also the people. If they prefer if a friends prefer walking and we rent in a rush. So, then one outlook.

Ok.

To give them company.

Ok.

(Refer Time: 35:46).

Like our mode of transport is majorly dependent on whom we are travelling with basically. So usually as many a times basically this happens that, we keep our cycle park at some place and then we go walking around. So, this is this also happens also during rains we opt for e rickshaw so.

This is one more. Another will be like if we are suppose to go for away or if we if we need to spend time with people. So, as we mentioned that we take a cycles together so that we can discuss.

Elaborately on whatever topic which was going on so. This has some situation where we like change from bicycle to walking to e rickshaw. That was quite interesting. Are you aware of any share transportation services in some other campus? And tell us just something about whatever you know about those things.

And I have seen shared by (Refer Time: 36:47) IIT Bombay campus. So where I was visiting then for an interview one of my friend who is perceive on PhD there. So, she showed us around so all you have to do is now you have to use the application download which from the play store. And unlock it using there is this certain code that of use in the app and be using Paytm and approximately I think is about 1 or 2 rupees perhaps whenever. And you can take the bicycle from any spot to and leave it at any spots, so that is one.

Ok.

And these to have huge cycles in Pune. Around go through it and we also had a (Refer Time: 37:26) company, where I store some time. They have their own bright thing and they also had solar and able panels placed in the inside the baskets using which I know the (Refer Time: 37:38) and met the small head light.

Ok.

Which is provided use to nack.

Ok.

At the locking system as well.

Ok.

I have seen many such cycles on the road to Pune. So, they have house will there a cycles are parked. And all of them have the same color, but relieve bright. So, you can clearly see that it is different from the conventional.

Yeah.

Cycles which we have so that is easy to identity. And I think it works somewhat in a similar way as the IIT Bombay cycle sharing system works. So, you have an app either it sends an OTP and then you can unlock it. And use it for an (Refer Time: 38:10) and drop it to the nearby (Refer Time: 38:12).

Ok.

Have you seen something?

Not let us say.

Ok.

But I have heard about (Refer Time: 38:19).

Ok.

Launching their pedal side of the business where instead of renting the car you rent a cycle and you can.

Yeah.

Give it somewhere. So, people who like long long cycle explorations, but like only one side (Refer Time: 38:35).

Ok.

They do not want to comeback cycling to they can chose pedal to go to ever them want then. Then fly back how would they wont to come back.

Yeah many campuses, I have installed the system in the present times. Another system would be to use bus service or something that that was there in Godrej campus where I was to work.

Ok.

So, these are few I think.

In the cycle that is very insight full what I would like all of you to do now is now we know lot of things more about this whole scenario related to transportation within campus.

How are by transporting ourselves, what are the challenges we are facing the group dynamics and so on. Now imagine that each one of you is deep in the in IIT Guwahati. Who is in charge of bringing in the new bicycle sharing system? So, you have come up with a very fabulous design idea for the same. Now the new first year batch because all of you are first year and just 2 months here and so you are very fresh with the whole orientation Program.

You know the excitement that you face you go through. We leave that situation that imagine now you are a dean and you are addressing this new group of students and their parents. So, think of this system we will take about 30 minutes to think about the system and then the time is over.

Each one of you will make a presentation like the dean, and rest or first we will act as a free other student, or the parent. And after your speech we will give you some feedback and we will also ask some questions.

Sure.

So, you can see that we had a good discussion with our participants on how to commute what all they face? So, now, they are entire thought process has gone into the problem of bicycle. If I would have given this problem statement that imagine more ideas in the beginning it is a they might not have been able to do a lot of imagination. Because they were not thinking bicycle and they were not thinking to commute.

By conducting this please sessions that we conducted. Now we have got them into thinking about this whole bicycle the commute thing and so on. Why I did this whole session with first year students? If because they had just two months into the campus and they fresh into the problem of transporting themselves around in the campus. And they might be able to come up with nice solutions which I am suitable for freshers.

I can repeat this session which more mixed groups I can bring in final year students who are also at this point of time thinking, how are they supposed to dispose of their cycles? I could have also brought in faculty staff members their family members, or say the frequent visitors to the campus, and then core design session with them as well.

And I could have got very diverse point of view could have captured their requirements as well. So now since we have almost done without 30 minutes, so let us here from our participants, what they have designed? So, Rohan will you like to start.

Yeah ok. Hello I am Rohan I am a dean of academic affair, so welcome to IIT Guwahati. Since this is a green campus we are implementing and we are trying to make it greener and for this we are we are putting up sustainable solution like shared bicycle system. So, you always get to use the share bicycle system.

So, what the system will be? I will explain you in brief. So, you will have to take us like we have provided a certain lot of cycles they will be parked at bicycle parking hubs. You have to pick the cycle from that hub, you have to do your whatever commute you want and then park it another hub, where your place of travel will be.

So, this system will be completely free for you because this system is sponsored by all the food courts that are like food outlets that are available in the campus. Another banks which are available in the campus. So, all the system is sponsored by them. So, you do not have to pay any single money you have to just use it responsibly, and think of the campus as a green campus welcome to IIT Guwahati.

So, all the new parents and students do you have any feedback or questions?

How we?

So, yeah what about the maintenance of the cycles?

So, cell since I have already told that this all system is sponsored by our partners. So, all the system is taken care by them the money which comes from them we have like we have allocated a specific staff who will take all the care of your cycles. They will periodically check your cycles and repair them when needed.

So, you do not have to take care like of maintenance you just have to take care of yourselves and the cycle value ride the cycle. But what if I get cycle that is not an proper condition?

What do I do with it?

The cycles are tact with the some like QR code or thing you just have to scan it, or you have to lodge a complaint with it, or another thing we have done is if the cycle is not used for long time. They are automatically flagged as damaged, or need maintenance. So, they will automatically be checked and will be repaired.

So how will you know that a cycle has not been use for a long time.

The GPS tracking system has been installed, which we will track that the cycle is standing in this place for long time. So, it will help us to know about it.

Ok.

In when is any more questions or feedback?

So we go to you.

Good evening students and parents welcome to IIT Guwahati, I hope you are enjoying your time here. I am the dean of cycle affairs, and I have we as a we have a group which has come up with a new way to ensure that every student gets to commute from wherever they want to wherever they want in a cheaper way. And they get to do it without having to buy themselves a cycle.

So, we have come up with a cycle sharing system. So, what we have done is? We have constructed cycle stands at all the major hubs you will get to know all the major hubs in time. The major hubs are we have one at each hostel, one at the sack, one at every core, one at library, one at the hospital, and one at the sport centre.

So, now you can there are cycles park everywhere, they are white cycles, white colored cycles, bright white cycles with adds from the companies that have sponsor these cycles. So, that you do not know have to pay for these and they are parked at each stand. And you can take a cycle from any stand and go and deposited at any stand and it is all free.

You can go from wherever you want to wherever you want without having to pay anything. Each cycle has a GPS tracking device, so that so that the people in charge no that no cycle is being taken out of the campus. And everyone knows which cycle is going where and no one is misusing the cycle.

And every cycle is numbered for easy identification and for easy. If you want to lodge a complaint against a particular cycle you can always take the number which will be easier for the administration and for you all. Now every now to make sure that the students have a sense of responsibility for the cycles and they do not misuse it.

What we have planned is that? We will appoint one person from the student body to each stand for each stand who will be responsible for that stand for a period of a month? And they are supposed to make sure at the end of the day.

That all cycles in their particular stand is in working order and if they find any problem with any of the cycle. Then they will have sheet of stickers easily removable ones, that they can stick on the cycle which they will attend to in the morning next morning by taking that to the cycle repair shop.

The person appointed for a stand can has the choice to choose group of people that can help him or her and or if he or she wants to do it solo, then that can be then that is ok. It is solely dependent on the person then that is about it. And then at the end of every month there is a survey taken by the students.

So, who vote on which stand always has the best always has the conditions in the oh sorry always has the cycles in the best condition. So, on depending on that survey we decide which stand is the best and the person who was in charge of that stand for that particular month gets rewarded accordingly.

And then after this we change the person we appoint a different person and the whole cycle continues yes and then at the end of every month again. We have a group of cycle



repair workers coming from outside against sponsored by the different companies that are present in the campus, someone outside the campus interested in advertising their company.

They are all the cycles are all sponsored even the cycle repair workers are sponsored by them. They come in at the end of every month, and they take a routine checkup of all the stands and make sure that everything is fine. And even if they are not find a finding tuning up is needed for all cycles by the end of a month.

So, then that is taken care off; and then I hope you all find it convenient. And I hope you all use it and I hope you all enjoy it your stay.

In this campus thank you.

So, the parents and students do you have feedback operation?

Yeah. So, one does we an extra responsibility to students to like to find which cycles are damaged and to tact them that is so what they will be doing to get the reward. So, which I can assure you will be something they will bond.

(Refer Time: 49:25).

We are still coming up with what it will?

The number of cycles was stand and one person with the after then and the daily job of looking at all the cycles in the stand. So, instead of having one person could have be like a dream.

So that is what I mention that the person it is all up to him or her. If you or she decides that they go will rather have her group of people helping them. Then they can either choose them themselves or come to us and we can appoint some people do the help him or her. And if you are she rather prefers to do with solo then that is ok.

And could there be way to have this rotation kind of system where in most students get to be get to an opportunity to begin that place help out. So, that not one group of students is you know kind of (Refer Time: 50:10) by the same work throughout the year, because academics is also one thing that you should.

Yeah it is not one group of students I said that every month the people will be.

Ok.

Change in every month new group will be appointed for every stand group or a solo person who whatever is their decision. Every month the people or person responsible for that particular stand will be changed.

Do you so that every the whole student body gets it is responsibility and there is also a sense of competitiveness between stands (Refer Time: 50:40) my stand was the best. So, that usually creates this sense of responsibility in the student body especially the people responsible for the stand to make.

Sure that it is all nice.

Ok.

So, how will you assure that every student's get the bicycle at that disposal when they want?

The number of cycles assure that the number of cycles usually when everyone is at the hostel they will the students will take the cycle where they want and usually that is the flow of the students.

Usually the cycles are going that way.

Right.

So, the number of cycles at by the end of the day mostly they will all be at the hostel. Because that is poor people will be coming back to and that is where they will needed next morning to go wherever they want to. So, then that will be.

Any more questions?

So can we have your plan?

So, welcome to IIT Guwahati all the students and their parents. And the day of cycle affairs as quoted by Shagun. So, cycles are the one of the easiest modes of transportation.

So, they are really eco friendly and they are easy to store and they are easy to operate and it is much better than walking.

So, what we have decided is we will bring in this cycle sharing system called a recycle. So, what this does is? We will introduce the set of 3500 also cycles and these will be either the cycles which you have which will be converted to the recycles. And it would be the cycles which have been lying as junk for the past few years.

So, they will be utilizing this. So, what this what is this recycle? Recycle is this recycle sharing system in which you take your cycle from one hub and drop it into another. So, all these hubs are located in key places such as your hostel academic complex, your lecture hall complex, your marketplace and the hubs will be dotted along the roads. So, that if you have to find any cycle it is not available in the hostel or in the academic lobe you can pick one from the nearby stand on the road.

So, how this works is? It is free for everyone. So, you can just pick up one cycle and travel as much as you want. Before that you will need to scan your ID card bar code. So, what this enable? This it gives you credits for the number of kilometers you trap it, it gives you credits. Whenever you park it in the designated hub it gives you credits, whenever you identify that there is a problem and press a button that will be available on the cycle that alerts the system that operates it.

That this cycle requires a repair so, what this does is? This eliminates the time that is consumed in looking at each cycle and checking whether it is fine or not. So, this shortens the process and giving credits is a very good incentive for the students to use this service (Refer Time: 53:49). Moreover this will reduce the strain of parking spaces that is very sparsely available outside on hostel and in the academic complex. So, it is very good thing to be a part of so I welcome all of you do it.

You said that (Refer Time: 54:08) credits for if I press the button for repair. So, if I want more credits I will just make sure that the cycle needs repair and then press the button to get the credits.

That can be done, but it is up to you people have truthfully you use the system because are getting it for free and getting to be part of such an amazing.

I am getting it for free, but I am also getting money if I press the button so.

So, I am not guarantee.

So, I will.

That the credits will be.

Equivalent value to money, but it will have some monetary value.

So, I will want that much.

Which one be that much that you will be able to explore it.

No not even explore, but, but if I am getting.

Yeah.

Even like a rupee for doing nothing example like making sure that the cycle those punched or something I will take it.

That is one thing.

But let me some people would.

Do you have any other questions?

Still has the.

So, credit should not be for the maintenance of the cycles that that you should take.

But.

Separately yeah.

It is to bring in the responsibility that.

Right.

You are partly owning the cycle and someone else's also be using it. So, it is your responsibility that it is in good condition.

So, the credits is just away to ensure that they fulfilling and duty by telling that yes this is cycle that requires at their. And I have fulfilled my responsibility by bringing into your (Refer Time: 55:32).

So, credit for parking makes a lot of sense.

Yeah.

Yes.

Maintenance some might exploited.

But may be like his sense a system is something in which you have already swiped your card, if you do too many maintenance but.

Right.

Then somebody can come.

Catching you.

Something is wrong.

Yes.

It keeps finding.

Faulty cycles.

Any more questions feedback alright.

Hello everyone I am (Refer Time: 56:00) I am the league of the students of air section of IIT Guwahati. Let me welcome all of you to this beautiful campus I am showing you have seen the amazing scenery that has on this campus. And you would so like to go over of the campus. And once you settle down in your hostels get your eye cards and start with your courses you will face that you will have to travel new hostels and to your academic (Refer Time: 56:28). And as much as interesting the travel there is, but you will need to save a lot of time.

And also the fact that since you will be here for about 2 years or 4 years you will need a bicycle to commute. So, buying one instead of buying one for a power 5000 rupees or 6000, or more or a second hand one which will require a lot of repairs why not have a sharing system?

So, this we have what we have decided through introduce is (Refer Time: 56:53) ones by signal sharing system. So, that means reducing one of the key features of this sharing system once you make your eye cards your eye cards will have a chip embedded in a which can be use to unlock the cycle.

So, in works in the way the same way you hotel room works, you place the check the eye card inside the lock and ride a thing. That is how you can ride the cycle and lock it and park it and remove the card.

So, your identity your eye card will be tract to the bike and the distance covered by you will be calculated according to your identity and will be mapped to you. So, basically where when you find these bikes? The bikes will be part and all the major parking house towards designated only for these special bikes which are located at all the hostels, at the new sack building, at the academic complex, the library, and the market complex.

And there will be separate parking spots designated and all the exit grids of the campus. So, you cannot taken outside the campus beyond safety and you can ensure the proper circulation of these cycles inside the campus.

Another thing is that the main so just outside the name sack building we have common repairing service system, workshop situated over there. You will find that there is a supervisor over there who get help you? So, if you find something in (Refer Time: 58:26) bicycle you get just take your bicycle to that shop. And get the replaced done by yourself under the guidelines.

If the supervisor, if there is any major the technicians over there will be able to help you. Now since the kilometers will be tract to your identity the number of kilometers perhaps same 500 kilo meters, we will earn you some amount of points. You can go to the maintenance and ensure that this cycle is repair on time. So, that it is in the very good health and your friends can also share it. So, that would not have points which was as we discussed we do not want you to take and you advantage of it.

But putting this whole system and this benefit of sharing the cycles we thought why not put nominal amount of it to make sure that this works in a very positive way. So, that you are aware of a rules and responsibilities as to owning and using those bicycle they have meant for you.

And so we have decided to just include fees of 1000 rupees per year that will both the semesters. And the that will bring the amount of money spend per day to about 1 rupee per hour and you will end up riding about 5 to 6 kilometers that would be much, it would you would earn the impact soon.

Since the (Refer Time: 59:54) this is the nominal fee and you would have to have (Refer Time: 59:59) much more here to buy a cycle. This is what he have introduce. So, I hope that this of the students for the students and by the students give helps us all have very healthy commute in the campus. Thank you.

Your system was that way they placing your ID card in the cycle.

Yeah.

With the first year eyes for the first 3 months we get a temporary ID which is big we cannot put that in the slot.

So, in that case you can get temporary card we can arrange for that temporary card by the time it will we like key chain perhaps. And you could use that key chain sort of card like you when you get a new SIM card, you get that kind of card and you can use it as a key chain.

So, that kind of card so that the key history of hostels and everything also remain secure with the key (Refer Time: 60:52). Also one point I would like to add that we have decided to introduce this scheme in phase kind of operation.

So, that we will start by having around 2000 cycles at a time and based on the response and the feedback and the service that we will conduct every month we will go on adding more cycles. So, that by the end of year we will have about 6000 cycles and that would be good for all the students I think.

The benefit will be that we can do the testing and trial and error method of this and go about this plant to ensure it success. On another thing is that these cycles they should they can be submitted for a monthly repair. So, every last Saturday and Sunday of the month you will have those cycles close to service. So, that they can be ensured proper healthy routine checkup and you can have them fresh for the next month.

You said that we will be we will have to take it to the mechanical shop next to the sack. If we find that it is faulty.

Yes.

Why would we do that?

Because.

We can just choose another cycle.

You can suppose you are on the way. So, we have this mechanical shop at the sack building. Now we also planning to set up another one in the academic complex so that you are on the need to academic complex is something happens you find that there is less a pressure.

So, you can just quickly go there and save your own time instead of having to final at the bicycle you might not have another parking nearby. So it would also ensure by the good healthy responsibility on your part and help other person sometimes in a same way that you could benefit at by someone.

Else it is actions.

So, as you have mentioned that this the cycle will not be available every weekend if where last weekend of the month so

Yeah.

So, if any one needs the cycle during that time the suggestion would be like to do it in a different like half cycles. In first weekend and half cycles in last weekend.

Yeah.



So, that would be on suggestion.

So, in yeah we could have a color coordinate.

Yeah.

So, that suppose I have green cycles I could also have red cycle.

Right.

The red cycles would go for where at the first.

The second weekend and the green cycles in the last weekend.

Good ok.

That is something.

Yeah.

We can definitely recall.

And could you mention the fees again.

Yeah so you could have an annual fees of 1000 rupees. So, consider you have staying here for 4 years you would have end up paying 4000 rupees. And we would not have to worry about what to do with the cycle or other maintenance for the bit because that would be covered.

By the sponsors of we have sports needs and the food court so yeah. And the points that you would accumulate after earning after earning the certain amount of distance you can go and en-cash them using coupons. And get some talking points and use them in the food word.

Is there any way any accommodation for my guest if someone comes to the.

Yeah.

Campus to visit me.

Yeah.

I will be on cycle, but he she wants. So, we both will have to walk.

So, like I said first this students because you do not have the permanent ID cards we will have the.

Ok.

Spare keys.

Yeah.

Which will be available at the repair shops and the security guards of the hostels around which the parking hubs will be located. So, the temporary cards can be used for bicycles and those who have permanent ID cards then we have.

Ok.

Obviously, use that that would also I think ensure the permanent ID card being on you body all the time and did not use it.

What would happen if the chain breaks while you commuting? And then you decide to just place it in some how to nearest happened that pick up and other cycle and how will that be taken for maintenance? If you are going (Refer Time: 64:43).

So, as I have mentioned since it puts in the card there the last person who would have put in the card in that bicycle will be mapped. So, it would be easy to locate that person who might have drop the and repaired cycle.

So, that would in; obviously, that would not want to any kind of punishment. Because you would obviously, mean certain kind of emergency, but you could always go back and get into their.

That would be the ethical and social responsibility kind of more that you could blame.

Or maybe you could ensure that 1 ID card and logs one cycle for us certain amount of time.

That would be (Refer Time: 65:17).

That would.

Suppose I need one other cycle and someone takes it and I want to (Refer Time: 65:21).

Yeah.

Yeah.

Very interesting ideas we have from all of you so like Rohan, Shargun and Vishwa Prasanna they want to have a cycle sharing system which is free for the students. Whereas, (Refer Time: 65:43) idea has certain amount of subscription. So, given a preference now imagine that you are going to be the user of such kind of a service. you came in un here on the first day and you still do not have a bicycle. Would you like to go for? Will you trust more of a free service or will you trust more of a service where in you obtain 10000 rupees.

I would have to me personally would have to see if the service provided is not worth what I am giving. If I am paying for it and if the service is running smoothly and it is nice then I would not my paying it.

But if the service is being misuse by everyone and I am still paying for it and I would rather have my own cycle.

Ok.

Like as a parent if I am thinking if the fees of the cycle is included in the academic fees then I will; obviously, pay it.

But if you ask me otherwise I will like the free service because.

Ok.

Yeah I will not have to.

We have that to mentality.

Yeah mentality.

Extra money we are giving.

Ok.

What happens if now imagine you do not have any way of owning a cycle in the campus. The whole campus runs on this share bicycle service system only. If cycle is broken in that case you might leave one cycle, but you might end up growing up the whole system.

Because there will be too many broken cycles. So, in that particular context how many of you do you think the first cycle that you found was broken? Say it is very easy to alert somebody say for example, in the bicycle handle that I have design for all of you I have kept some red seat covers.

So, in case the first cycle that you picked up and you identify that it is not in a working condition. Can you just pick up red seat cover and put that red cover. So, it is very easy to identify and then who want to the other cycle will you be ready to do that much of the efforts.

Yes, yes.

Or may be instead of a seat cover which can it expansion for the people who are considering that (Refer Time: 67:54).

Ok.

That is the if the sheet of the sticker is in the hanger you can just put it on some (Refer Time: 67:58).

Ok.

Yeah.

And that is.

Ok.

(Refer Time: 68:01).

Say for example, I do not need this system in which your ID cards are involved.

Yeah.

In any way it is free system you just pick up the bicycle go wherever you want to and you put it in a particular hub only. And not like leave it anywhere and everywhere. Now, because that is the only system which is meant for commute, if you leave it anywhere and everywhere next time you might not get the cycle at the right hub.

Right.

Do you think you will behave more responsibly?

Yes.

Yes.

Definitely if I do not have the option of my own personal cycle and I would want to make sure that this is available when I need it. So, I would rather park it and they have then keep it any.

Yeah many a time like 90 percent of time it happens that yeah we will behave responsibility, but responsibly. But sometimes it happens that we are keeping a cycle at a place and then we go around walking with friends, and then we will think that let it be there. There is no need to go back there. So, sometimes it might happen that we will not be responsible as a student.

Ok.

I will be frank only.

In the special bicycle sharing system would you like to have bicycles which is specifically design for your requirements. Like requirements of frame, shade, caring yeah.

Yes.

Objects.

Yeah.

Yes.

Very much

Very much because the campus gets dark early so we should be having lights in a lights. So, it starts getting dark at around 5 or so.

Yes.

So then it becomes really difficult to go through because it is a canopy as well. So, the moon light also does not pass through and it is so dark you cannot even see people.

Yes.

So, you could have baskets, you could have lights. Then you could have mud guards that will

Yeah.

Protect this in the.

There are many.

There are bicycle.

Roads in the campus sorry. There are many roads in the campus they are actually dark and they require light like normally people what do they is like they put on the torch on the mobile phone, and they ride the bicycle like this so.

Quite unsafe.

Quite unsafe.

Yes, that is true that is very interesting. What about say for example, now you all own new bicycles which is just 2 months old and you must have spend around 5 to 6000 on to that. Now if I say I am going to start this new service but, I want to start the service by with your cycles and that everybody else a cycles which are existing cycle.

So, now your cycle is no longer your cycle, but becomes IIT cycles. So, if you have to sell that cycle to me will you charge me something to give it to me or will you give it to

me so that because, now you are going to you can use any cycle in the campus. What will be your more preferred way?

I will charge you obviously.

Yeah.

Depending on the condition I will get somebody because I am.

Yes.

Paid it out of my pocket. And along with that for using the others if you are implementing the subscription method I still have to pay. Because even though it is my cycle everyone is going to pay the subscription phase. So, even I will have to pay.

In that case why would I give up my cycle?

Yeah.

Ok.

And yeah.

Giving up free if I am bought that means, it will be admired (Refer Time: 71:07) first will any time of the day. If I am giving it for free to the campus then I will not have that a surety that I will have it every time I want. So, I would rather charge for it.

What if you are about to pass out of the campus?

Then only (Refer Time: 71:23).

Yeah then only.

So, then will you give it for free to the campus or will you still charge it.

By the end of 4 years, firstly it is very difficult for a cycle to be in that same condition.

Ok.

That we bought it in.

Yeah.

So, there is no point actually in charging and anywhere you would not have any use for the cycle if you are going outside the campus which is in some other city. The transportation cost itself will be more than 1 the cycle is worth.

Yeah.

In a (Refer Time: 71:47).

Yeah.

We put it in some.

Yeah, yeah, yeah we will maintain (Refer Time: 71:48).

In that case.

Ok. Thank you so much for your contribution.

Thank you, Ma'am.

So, we have come to the end of the co-design session, you must be wondering how are we going to use this. So, in a co-design session the role of a moderator is like they will always get some pointers on which they can quiz the people, and at the same time they will try to note what they are saying. So, all the ideas that they give me it does not necessarily mean I will use the same idea, and put it into the solution.

What I try to understand from their ideas is what are their motivations? What do they want out of the system? I can easily gather like they want a free system, or they want a paid system. Under what conditions they want a paid system? If they are paying for the system, what kind of assurance they have asking from the system?

If the whole system is bike sharing, are they ready to take responsibility as a community and behave more responsibly. So, I get these inputs which I can now use, I can either use one of their ideas, mix and combine their ideas or I can come up with my own ideas taking inspirations from what I have gathered from them. I hope it was a good learning experience for all of you.



Thanks for watching this video, have a good day.