### **Meeting Summary**

#### **Project Discussion: Reinforcement Learning for Drone Control**

* **Comparison of Single Control System vs. Multi-Agent System**:  
  1. A **single control system** is more **energy-efficient** and easier to implement but poses a **single point of failure** risk.
  2. A **multi-agent system** provides redundancy but requires **individual computing capabilities** for each drone, increasing power consumption.
  3. A potential solution: **Single control system with a backup mechanism**.
* **Key Factors to Consider**:  
  1. **Battery Consumption** (centralized vs. distributed computation)
  2. **Signal Coverage** (network stability)
  3. **Wind Speed Effects** (potential multi-objective optimization)
  4. **Collision Avoidance for Drones**
  5. **State Representation**:
     + Must include battery levels, drone positions, feasible paths, resource availability, etc.

#### **Reinforcement Learning (RL) Algorithm Selection**

* **DQN (Deep Q-Network)** is recommended for training the control system.
* **Tabular methods are not feasible** due to the complexity of state representation, necessitating deep neural networks.
* Suggested to **review existing research papers** for similar projects and their algorithm comparisons.

#### **Task Distribution**

* **Environment Design**: Xian & Mohan
* **State/Observation/Action Modeling & Reward Mechanism**: Main & Syber
* While responsibilities are divided, collaboration among members is expected.

#### **Simulation Environment**

* The team favors a **grid-based environment** to simulate the drone's operating area.
* **Low computational cost**, feasible for laptops; if computational limits arise, cloud resources (e.g., Google Colab) can be requested.
* Further **exploration of alternative simulation environments** is needed.

#### **Project Timeline & Resources**

* **Expected workload**: Each member to contribute **4-5 hours per week**.
* **Experience level**: Most members **have no prior RL experience**, requiring additional learning time.
* The team needs:
  + **Reinforcement Learning study materials**
  + **Research papers on RL in drone systems**
  + **Further exploration of DQN feasibility**

#### **Collaboration Strategy**

* Plans to set up:
  + **A GitHub repository** to track progress and contributions.
  + **A communication group** (via Campus or another platform) for real-time discussions.
* Weekly **team meetings** to ensure smooth collaboration.

#### **Next Steps**

1. **Define the grid environment in detail** (state variables, battery info, etc.).
2. **Research existing literature to find similar RL applications**.
3. **Team members to start familiarizing themselves with DQN and RL basics**.
4. **Set up GitHub repository and initiate preliminary code implementation**.

### **Conclusion**

The project is currently in the **planning phase**. The next focus will be on **learning RL concepts, defining the simulation environment, and developing a clear state representation**.

Speaker 1 (00:00)

Yeah, and II took the function of getting The Matrix from the drones. No area matrix from the drones, and then it's building a path. Yeah, and so mine is a very small function, and I'd say it's just not doing it's just doing simple ideas.

Speaker 1 (00:20)

What we need to focus on is the main part it's the Drone movement part. What we have to figure out right now is What smaller functions could we split that into okay? So the simulating simulated unealing approach is already did, so we'll be modifying a bit of ateva's assignment.

Speaker 1 (00:48)

Yeah, it will be mortifying that the court everything is there now what we have to discuss is what other functions do we have to implement? So based on what we discussed Last time in all 4 of us met

Speaker 1 (01:51)

Let's hurry up so far it's really be. It's sending drones into the area. Bixby exploring random me, so now we need functions.

Speaker 1 (02:04)

01 else, how's the drone? It scans the bottom region and sensor matrix, so that does money function, and then um, um, and what are the functions could be right? So I'm just breaking it down into simpler tasks, yeah.

Speaker 1 (02:25)

So so one functional thought of this bad So one of us could take a function, let's call the function as Oh God, that information or something? Yeah, that's where it let's say it's however, 3 grocery near and then it good gather all the information from that 3 + 3 metrics and send it to the my pay function retired. By the way, okay.

Speaker 1 (02:51)

So that agriculturday I got I got me feed these individual mattresses, yeah. And then build one whole thing, and then do an ideas on it.

Speaker 2 (03:05)

It's okay. All right, if we could start like there's a lot of information like we could just sort of like start, just like knowing this doubt so like, um, yeah.

Speaker 1 (03:31)

So let me start with noting your workflow first year. So what are the way to? We are sending drones?

Speaker 1 (03:44)

Yes Help me.

Speaker 2 (03:52)

It's a power account well, how do we specify? How many is that a function on the size of the mapportal are?

Speaker 1 (04:03)

So we tried doing Sending drones on a simulated and leaving approach, but then the problem what we are facing is, I'll just show you if you So let's see, this is a grid. And let's say, initially, the drones are 3 × 3. N2 plus 211 gross man.

Speaker 1 (04:33)

Let's see, I put a 2 × 2 here. Yeah, and then I put up 2 crush 2 here So what's really happening is here? We are forced to use a 1 class 1, we need to get rid of that first.

Speaker 1 (04:52)

And then? I'm not sure how we're doing that. And then yeah, that's one thing that women concrete.

Speaker 1 (05:04)

Okay, let's say we put a 3 + 3 here.

Speaker 2 (05:08)

All right, I'm here, go here.

Speaker 1 (05:09)

And yeah, you could also put a 3 × 3 here. Even though it goes outside of the rest but then it would it would savor it could save us a drone, yeah?

Speaker 2 (05:19)

So yeah, so that that yeah, that would work.

Speaker 1 (05:23)

And even here you could protect degrocery. Yeah, so it would sufficient is a phone run.

Speaker 2 (05:29)

Yes, there's not like symmetrical distribution, yeah?

Speaker 1 (05:31)

Yeah, what sufficient food loans had it simulated and healing will be requiring like assume me, okay, so that's one thing happy see. How do we get rid of this?

Speaker 1 (05:59)

I'm not moving. I forgot to mention we've removed the 2 × 2, so it's 1 + 13 grocery and 5 × 5.

Speaker 2 (06:06)

Okay. Yeah, so then that last 2 cross. 2 rights are one year need reminder?

Speaker 1 (06:16)

So? If if F at 3 grocery 3, so in this situation, a 3 crusty doesn't fit. I mean, generally, if you are taking the same grid as before, so it should it'll be, it'll be left with no choice but to take place.

Speaker 2 (06:32)

Yeah, 1 across 1.

Speaker 1 (06:34)

So that is something that you have to avoid. So if that stick is what you have to do is we have to remove the grid boundaries. Like, the shape can go outside the glitter.

Speaker 1 (06:50)

We should do something like that, yeah?

Speaker 3 (07:08)

What mind we need? The main drones went just not one of the search.

Speaker 1 (07:15)

In this case, yeah. Yeah, actually, in this case, generally a file cross 5 would fit. That will cover the whole grid, but then what happens with simulated ending or any inclined?

Speaker 1 (07:28)

Yeah, yeah, it just picks one randomly. OK, so let's say fix a 3 × 3 at first and it puts a 3 + 3 here it is, it doesn't, uh, it's left with no choice but to put 1 × 1 in the remaining. New garden We're not saying what I'm trying to say.

Speaker 2 (07:49)

Some of the stars round up, so it's saying, yeah.

Speaker 1 (07:59)

So let's say, put your 3 × 3 here. A 3 × 3 It has no choice but to put boat once one's a monster. Morning, I mean, if it picks a 5 × 5, that's where it can fit the whole credit here, but what happens is?

Speaker 1 (08:22)

The drone and simulated and an ingos to a random set. Sorry to go straight on until let's say, speak of this light.

Speaker 2 (08:29)

It's 5 + 5, but it's not covering at all.

Speaker 1 (08:31)

That so the probability of at picking ficrossbeds, the cell is very, very low, yeah? It's hard, it's, it's not always that it goes over there. What can we do?

Speaker 1 (08:48)

Do we stick? And do we have any other approaches

Speaker 2 (08:57)

So other than that's simulating, the inappoint Wells, is that

Speaker 1 (09:06)

They could do are the last minute.

Speaker 2 (09:14)

Did you not like obviously obviously more mindful of this? When he spoke to professor last time, which is only after that I started.

Speaker 1 (09:20)

Yeah, yeah.

Speaker 3 (09:39)

Sorry, I still have one. Maybe see a question. Um, I will pick if we send a 3 × 3.

Speaker 3 (09:54)

Don't hear then we need a lot of 1 × 1. And is it because we Assume there are lots of details in one grade. So we need to send one John BC1.

Speaker 1 (10:17)

So simulated and yelling pixel sport in random, right? Yeah, simulated and yelling at fix it. Does everything in random right?

Speaker 1 (10:28)

So let's say, if it fits this part And then let's say, if it picks this part it, it has no choice but to pick 1 × 1. That's what I'm saying.

Speaker 2 (10:48)

But in terms of what we what we were talking about last time, it was It was like A We, what, with what the luck was late but and the principle of the idea where it was going, we want to send out drums and it was going to scout in the area. Like-for-like?

Speaker 1 (11:13)

Swear I felt for doing exploration run, that wouldn't BA search, I believe, because it's there's nothing in our nominal tattooed, it would be like just a BFS R okay?

Speaker 2 (11:27)

Yeah, all right.

Speaker 1 (11:29)

That's what we're thinking. Any exploration drone would be like people bowl like yours? I'm still yeah, yeah, on the scanner I think

Speaker 2 (11:43)

What would a reinforcement learning approach? Will client facility comparison to this

Speaker 1 (11:49)

So reinforcement learning looks like We can get over thousands and thousands of vitations, right? So what I'm thinking is when we train it 2000s and thousands, there could be one scenario where it would pick this enter spot and it could pick the spy cross 5. Yeah, and then the water is gonna be too high.

Speaker 1 (12:14)

Yeah, so it'll pick that as the goto in such a situation, so that's where reinforcement learning is right. Yeah, I'm thinking of that first.

Speaker 2 (12:43)

What was the idea that we spoke to the ta about last time? What he mentione?

Speaker 1 (12:48)

We mentioned neural networks Soon? Neural networks, I still don't understand fully how they work in programming perspective. No, no, I'm not sure why I become talk about it.

Speaker 1 (13:06)

Yes, right now. Maybe once I start with the PA programming assignment, maybe I could. I could do something yes, too.

Speaker 2 (13:14)

It's too late before then.

Speaker 1 (13:25)

Maybe if you could try it RL.

Speaker 2 (13:31)

I tried to. So I don't know how we've overcome the situation with, like, look at that. See you lately.

Speaker 2 (13:40)

Deal like a random start, you know, then the uvia will inevitably lead to situations like you have

Speaker 1 (13:47)

So I ordered is also random, but the good thing is it stores yet?

Speaker 2 (13:51)

It's more expense, yeah?

Speaker 1 (13:53)

It stores what it lands. So I don't know what to do next.

Speaker 2 (14:06)

But how up is a real life application? So it is a disaster using your rl model one.

Speaker 1 (14:15)

So do not. Sending the drones than under to learn, so we are already teaching drones.

Speaker 2 (14:24)

Oh, it says beforehand and then you just send out. You can specify a case this area and then it will adapt to that.

Speaker 1 (14:31)

Yeah. But then I'm again contradicting the point that I said in the last meeting like, how do we train about a disaster things that are changing right? One way is training it over multiple disaster simulations.

Speaker 2 (14:57)

Yeah. I'm a little bit lost now. So like the point of the drones, is it to guide emergency services towards an objective or is it?

Speaker 1 (15:10)

Though so the thing as it is to provide Signal as long as it can and then if the drone's battery is really low, then it's gonna guide him a wake up a substitute vehicle.

Speaker 2 (15:24)

You may substitute a drone or substitute vehicle.

Speaker 1 (15:29)

How to? I draw anything anything that they have. Let's let's say, if there are out of if there are phones April tend a patto to a vehicle so for that you need to analysts go, it's a better older environment.

Speaker 1 (15:43)

Yeah, if benefits are drone, it can just play Over.

Speaker 2 (16:35)

I don't know, I think it's gonna be, but I'm reading multiple. It's like ARL approach.

Speaker 1 (16:44)

We could work on a lot show.

Speaker 1 (16:59)

Or you're gonna do one thing, yeah? Like, you could just take A Empty grid I mean, it doesn't have to be from the BAN or anything, I'm just an immitigate, what sorry, just an empty year, it doesn't have to be the one from PS or anything. Yeah, you could just take an empty grid and using RL you could try.

Speaker 1 (17:25)

Like empty grita matrix of zeros. Let's see Yup, and then using autumn. You could I mean, you'll have to place mattresses like Something like this and you could train and see how it works on this.

Speaker 1 (17:49)

So that could be our, that could be a starting thing.

Speaker 2 (17:53)

Okay, all right. So we just couldn't split it up and look, everyone's gonna try something and

Speaker 1 (18:08)

Yeah, because right now, even I'm out of Ideas, okay. One thing is I'm very tired and sleepy.

Speaker 2 (18:18)

Oh, so um, in terms of what you've done so far, so what you you said something about, like a like a mapping function so much more, have you

Speaker 1 (18:28)

So that's basically just like let's say a drone, let's say there are 2 drones D1 and D2. Yeah, let's say it to Okay. Okay, let's say it's 6 Class 3 Netflix and then D1 is over here and then D2 is over here and then D1 returns this matrix.

Speaker 1 (19:00)

OK and D2 returns this matrix. Let's say Okay, and let's say there is So there is some emergency or some help needed over here. Yeah, what it's going to do is it's going to join these 2 mattresses.

Speaker 1 (19:29)

And then find a path. Okay, that's what it does. Alright, okay, search Kona, join the mattresses and then find about that's it

Speaker 2 (19:40)

Okay. Alright.

Speaker 1 (19:44)

So this is pretty some good could be done using a BFS

Speaker 2 (19:49)

Then in terms of like, be a environment like, did you guys just use?

Speaker 1 (19:53)

Yeah, for now we just use the gymnasium. No obviously she used to be a one center on there. We just remove the block Stone I mean, Bixby there are no blocks that can initiate.

Speaker 1 (20:06)

And then we just use doubt, we change the shapes of the brushes, okay, and then we use that, but if you don't wanna, if you just want to get an idea. I would suggest doing this. Take off, then cross done matrics with all zeros.

Speaker 1 (20:22)

Yeah, and then you could take 2 values, let's say this is E, and let's say this is B, and you try to fill in this matrix with Least number of Andy poswell, yeah, and I can maybe give you an idea. Okay, I don't know how we can start off with things.

Speaker 2 (20:44)

Okay. All right, I can start looking into the RL and see rockins.

Speaker 1 (20:50)

Yeah, and when when you start working on it, maybe something might strike you and then we could discuss and take it from that, yeah, all right.

Speaker 2 (21:01)

Okay, so that's that side. So like, basically, we should just all go away and try to sort of work on something and get it options. But in terms of the other tasks that we've got to fulfill, but then in terms of the meeting you, so we said Tuesday.

Speaker 1 (21:17)

Today, Tuesday in?

Speaker 2 (21:19)

So okay, uh, is anybody want to volunteer to reach out to the

Speaker 1 (21:25)

I can't do it. I come to work.

Speaker 2 (21:27)

What time it would work for everyone on Tuesday?

Speaker 1 (21:30)

I put a poll in the group and then record over it. Okay, I'm not resting the response to speak a door.

Speaker 2 (21:35)

Okay, fair enough. And then in terms of this was in my email. We have to submit like a link to a gear propository.

Speaker 2 (21:52)

We need to look at the There was a piece that there was a guy, don't sign up. A joint proposed Tory is somewhere on there. This, I don't compass, one horizon like the.

Speaker 2 (22:07)

There's like a pediatric guy, Jennifer bro. To the project, so we should, we should, we should set something up? You're welcome.

Speaker 2 (22:24)

Okay.

Speaker 1 (22:26)

Should what you think about this? Okay, scaling, this woman left thing is in memory nether, let's sleep.

Speaker 3 (22:42)

I'm not very solid in the I'm doing my tone, knowledge sign, that's true. I can help but I still have some question. Maybe I need to spend more time.

Speaker 1 (22:54)

Yeah, yeah, just just go around and play with this. Yeah, this could be a good start, I'd say.

Speaker 2 (23:01)

Okay.

Speaker 3 (23:03)

Oh, this is one like a function.

Speaker 1 (23:06)

Not not a function, I'm in. I'm not sure how do we start implementing it? So maybe when you guys try something like this, you guys would get an idea, so imagine There's a drone in the center, and this is the a good cover.

Speaker 1 (23:23)

You're just seeing seeing it in a matrix perspective, and this is an empty grid with all zeros filled, okay, and then you're just trying to fill in these matrices in this yeah, so that all these zeros becomes one. You getting a point

Speaker 2 (23:41)

Most of those are 2 different side like signs, okay?

Speaker 1 (23:44)

Let me tell you that.

Speaker 3 (23:45)

So we're adding the it's no matrix into the big one.

Speaker 1 (23:51)

So let's say you have this matrix.

Speaker 3 (23:56)

How do you decide to use Small matrix or.

Speaker 1 (24:01)

Yeah, larger, what we're going underwears, we are going to do all along this. We're gonna train it with different combination syndrome and then from the training data. You'll know what to use.

Speaker 1 (24:18)

So let's say this is an empty metrix with zeros, and then let's rehab. The sprush And let's say, this is just an example you put this in here first. So then all these ones, all these zeros become once.

Speaker 1 (24:40)

And then what you're gonna do is you're gonna put one more here. All these zeros become Once you won't be needing to use the 2 × 2 again.

Speaker 2 (24:50)

But then in that instance, you would have like something less yeah.

Speaker 1 (24:56)

And that should be fine, I suppose. So now we were able to figure it out quickly because we are seeing and doing it, but when you take it from a machine's perspective, it's, it's really hot. So you have to keep training this on multiple training this on multiple episodes so that It knows that okay, we have to put through these matrix, and then we will be able to fill it up.

Speaker 2 (25:23)

Yeah, the running list is going to be like, depending on how big grid is going to be quite exhaustive.

Speaker 3 (25:31)

I would like find home which size of small matrix can fit the Big matrix in?

Speaker 1 (25:39)

I'll tell you I'll tell you, so let's say they're using a 3 class 3 matrix, and you're training it, so let's say it puts a 3 + 3 matrix here, and then It fills it up and then you are using another 3 + 3 matrix. So then how many meters are you using 2? Thank you 2 OK, now, let's say, instead of a 3 + 3 matrix.

Speaker 1 (26:00)

You are using a 2 crush, 2 matrix. So 12. 13566 m CR using if you're using a 2 crust drone space, 6 drones basically

Speaker 2 (26:16)

Turn over that area.

Speaker 3 (26:18)

Oh, maybe there is a cost for like 3 pton. Yes, and we need to minimize a coffee.

Speaker 1 (26:27)

So you are using 2 drones here, that means the cost is something that you prefer. So the reward is very, very high. If you are using 66 drones, that means the reward is low.

Speaker 1 (26:40)

That's not what you want to do. So when you teach a model with such things, and then when you run it again on a new environment, different

Speaker 2 (26:51)

What an environment is going to keep our kids going to update constantly. Yeah, and optimize

Speaker 1 (26:57)

It's gonna be like when I fill in with bigger matrix. The chances of me getting a more a bigger award, yeah? If I'm in trying on a smaller matrix, though chances are the time I'll be getting a less reward.

Speaker 2 (27:13)

But in this instance, that's always gonna go for the biggest size, that's why we may never look at that's what we need. Yeah, but then what happens if you have like? Like, is it never gonna think about like, okay, like I don't want to like cover too much area that I don't need to cover charming cuz like if you like we set with like 3 cost 3 and there's going to be some spill oversell right?

Speaker 1 (27:37)

We could also.

Speaker 2 (27:38)

Well, because like you want to try to optimize it, so it's like I have a number of drones, but then you're also looking out like, okay, a 3 × 3A drone is the power consumption. It's going to be greater than the 2 cross.

Speaker 1 (27:55)

So in that case what we are doing, let's say here we are using the 2 × 2 the right ear. These are all news I'm getting wasted. So this could be used to minimize the reward again?

Speaker 2 (28:06)

So how much yeah?

Speaker 1 (28:07)

Yeah, that again depends.

Speaker 2 (28:09)

Yeah, yeah, I'm drives thinking about it, but yeah.

Speaker 1 (28:13)

We could use that yeah. Okay, so when you got right? So based on the area covering record, minimize the reward again.

Speaker 1 (28:28)

Let me get outside the grim, yeah?

Speaker 2 (28:31)

Well, cause you try to like II think you don't want to cover too much area that you don't need to cover and also you don't want to use too many drones to cover in specific areas. So it's like a you know, a mix of both of those requirements you know. And then we take you from that, and we'll see what happens.

Speaker 2 (28:51)

Alright, so we better get star, otherwise it's going, because I don't know how it's going to take to run that model. What's we do get out?

Speaker 1 (28:58)

Yeah. I think it should be. It's pretty easy for me, I'm not sure.

Speaker 1 (29:05)

If it's taking a lot of time, we could ask for this car requester. Yeah, that's not a piece dance.

Speaker 2 (29:11)

Systems, yeah. Alright, we'll see. The key is just to get it open running.

Speaker 2 (29:16)

You can test it on weekend

Speaker 1 (29:17)

We got that you don't assembl.

Speaker 2 (29:18)

There are smaller ones. Yeah, and then you increased the size, like once we're sort of fairly confident, is it's functioning, as it should be, you know, we feel really go much larger. But we're not gonna like a week, does that look?

Speaker 2 (29:34)

How far do we want to go with this in terms of like? Like different variables that we're going to talk about, like, because you know, like you're but you can combine like, so if we do that right? And then you're doing the mapping function, do we do anything to simulate?

Speaker 2 (29:48)

I don't know different topography or like environmental facts like those are my necessary.

Speaker 1 (29:56)

Well, I didn't get killed.

Speaker 2 (29:58)

So like right now, like this is just okay, it's about the size of the grid are the size of the drone okay, and then you're then going to use that to map around right, what do we do we like? And as everything's like on A2D plane essentially yeah, but do we not need to do we think we don't need to employ anything like, okay, I don't know like. You know, cause we set obstacles like an obstacles just gonna be in A2D plane, or are we gonna think about like?

Speaker 1 (30:26)

For time Bay, we've removed the optic obstacles. Because this is something we have to focus on first. So once we are, I'll put this, they couldn't.

Speaker 1 (30:38)

We could think of what the obstacles part. Yeah, I mean, because when there are obstacles again. The drones have to start rearranging themselves.

Speaker 1 (30:49)

Yeah, that is another big thing at say. So let's start off with this first and then, if we come up with a solution to this between good We could then figure out remaining stuff.

Speaker 2 (31:04)

Okay. So I think that like you said, we'll focus on they're doing this like that fundamental. Yeah, like you know, element to the whole thing.

Speaker 2 (31:14)

Then we'll look at how we can I just want to make sure what I'm doing someone that's too like. Look, he doesn't could just decide. We didn't go far enough.

Speaker 2 (31:26)

You know what I mean

Speaker 1 (31:28)

I'm in. He said he's pretty much fun with anything. So yeah, so start the number.

Speaker 2 (31:35)

I'm not saying that this is basically. Yeah, I just want to make sure we maximize like the potential for length scoring.

Speaker 1 (31:44)

So the only thing I would think of is like we implement the sandal routing thing, and then it's a bigger Don't have a bit exaggerated about it. Maybe it'll sound a good but uh, yeah, so let me start off. We get out.

Speaker 2 (32:01)

But it's working, right. Yeah, we get this one way to look at a kind of service that we have a limited amount of time if we get this working with this. If the map being function and show them I look at like it's, we've got them.

Speaker 2 (32:12)

You know, reinforcement learning model working, and it's doing it's everything I want to do, if we don't quite get to the point where we can see Simulate like that, the additional sort of complexity we can always. It can always be like a recommendation for further

Speaker 1 (32:29)

Yeah, it's, it's open for it.

Speaker 2 (32:30)

Well, we can discuss that when it's part of the presentation in the report. I don't give it so you could like, yeah, you know, develop it further if we don't get to that point, which is fine. But this is the like I said, the fundamental basis of this whole thing.

Speaker 2 (32:44)

Yeah, that's what we need to oh, what's on Right Now. And then in terms of like, should we Wait cuz, we need to touch Bay through it, but we would like Look at all gonna be here on Monday, right? So for thanks, I'm not sure we have to like sit down for several hours, but like we should like ketchup, okay, wear it out.

Speaker 2 (33:07)

We cuz, we need to like I put together like a timeline, and make sure the reposed story is set up and like a summary of the progress. So foxes will be possible with the next, like ta check-in to want to make sure we're getting like all those like you know, I'd say easy, Knox.

Speaker 1 (33:31)

So so the one of the thing is, once we implement this restaurant could be done as small functions like getting the date of The Matrix under the area under the drone, that could be something that could be done as a matrix here. So that will be read from the grid directly. The professor said it's OK if we do that.

Speaker 1 (33:52)

Yeah, it's okay if a hard code stuff and do it OK, but the only thing is these approaches. It should be should be proper.

Speaker 2 (34:00)

Better applications, yeah.

Speaker 1 (34:02)

Except that is going to focus on the ground. Mmm, AI part of it, I'm just going to check that.

Speaker 2 (34:11)

Okay, alright. I don't know if there's an effort. If any of you guys have got anything else to learn?

Speaker 2 (34:19)

I'm just going to go now and just try to give us to work and see what happens.

Speaker 1 (34:22)

Yeah, so you guys could do it at your comfort. I'd say, but we'll, we will be putting a deadline. So when you visit me

Speaker 2 (34:31)

It's basically like prolonged assign and 2 to the app stand here.

Speaker 1 (34:36)

So if we could put it at 9, I'm in, you could do vote on your own or use Chennai or anything, yeah, so, but I'm trying to

Speaker 2 (34:43)

I think it's something to get it to work at something for for us to like couldn't review and yeah, okay, all right, so we'll get started with it and see why.

Speaker 1 (34:53)

So you guys understood the inputs and out

Speaker 2 (34:55)

I would say I have a sudden imports in the outputs, show you app, and we're going to try to do it.

Speaker 1 (34:59)

It's going to give up nice prom to the general, and I hope it gives a working cord.

Speaker 2 (35:02)

I think that that would be amazing. But yeah, but like we just need to get started work on it and see what do we get and obviously you know if we get make some progress like you said like you'll start to think about the things.

Speaker 1 (35:15)

So once we start, we'll know like what to do next year.

Speaker 2 (35:18)

Yeah, and that'll give us more to you know, speak to the TA about, you know, get more rough. You know feedback, so we'll see what happens. But yeah, okay, I'm clear on that.

Speaker 1 (35:29)

You too. So the says we'll be doing this part individually for no, so that each of us could come up with different ideas and Dr. Carol, ever.

Speaker 1 (35:38)

Thus, yeah, and if you guys come up with any ideas, do note it down or do put it in the group. And many of you guys think we should be having a daytime for this.

Speaker 2 (35:50)

I think I'd say like end of the day Monday and then like so like Tuesday, you know, Tuesday, we're gonna decide what time we're going to meet like someone can do.

Speaker 1 (36:03)

Monday or day do is put it. Yeah, exactly the air Tuesday.

Speaker 2 (36:07)

Today, Tuesday, we'll be speaking with the ta, right? If we, if we save Monday So we're going to meet up when we can discuss it and yoga. You know, that's where we are and then you know, we can obviously still continue to work on it till we meet with the ta on Tuesday, but like have like a deadline, okay, like have something you know, at least like to present.

Speaker 2 (36:34)

As a group one Monday

Speaker 1 (36:38)

So if you guys are done with this early, let's say it's like tonight or tomorrow. Yeah, I have suggest if you feel like any other functions that could be implemented. Yeah, to make it better or something you

Speaker 2 (36:49)

Because you know, by all means, like, if we, if we yeah, do this before the Monday, when I'm going to just stop like, obviously we'll let you guys know okay week. This is what we've got this is the ideas that we've got for like contest or further this or any questions. That we might have etc et cetera.

Speaker 2 (37:07)

We just keep going from that, but the main objective right now is to just

Speaker 1 (37:11)

Yeah, it's it's this. Yeah, so let's just keep working on it and get it done. As soon as possibly when I am at the stoner if you guys have, if you guys don't have any other assignments or anything to do so what about problems that you has finished.

Speaker 2 (37:26)

No I don't finish the problem saying okay, exactly gave us another week to do that and that.

Speaker 1 (37:32)

My name is minister on deadline.

Speaker 2 (37:34)

Deadlines, next Friday top Friday. It increased it by a week on the email now cannot contagious way and then the problem.

Speaker 1 (37:42)

But it's pretty easy, I said the governance

Speaker 2 (37:44)

It's a little bit of an assignment he's releasing today. And then we've got 2 weeks to do it. Brownies are doesn't want to make sure he's releasing it tomorrow.

Speaker 1 (37:56)

It's a great direction.

Speaker 2 (37:57)

Yeah, brought rose out of the salmon. Yeah, they're probably don't know.

Speaker 1 (38:00)

Someone said, yeah, it's very direct, okay, I'm sorry I sat down here yesterday and it was a pretty easily good film drinking like 4 hours or 5 hours, okay, so about yeah. I am not the latest part. I was just doing on paper.

Speaker 2 (38:14)

But jedi has been useful with that. Yeah, but it's like to check, but it's not messed around with the numbers, right?

Speaker 1 (38:27)

I will have to go and get some soup.

Speaker 2 (38:30)

I think that's in my opposite question to see what time when it's trade is Has it changed the Trillion times which is the Sam?

Speaker 1 (38:41)

The broken ends.

Speaker 2 (38:42)

I know, like it's cuz. I have to get trained why I get to north station right? And then I have to get a train from north station to And they're doing some work on that line.

Speaker 2 (38:54)

I'd like they've changed completely changed the time table. Alright, so I need to get to my station by 12 50 0, for 1215. Okay, well, I will see you guys no hair but again don't feel free to reach out.

Speaker 2 (39:15)

But we've got all south group. Eventually don't have anything with funny questions No, let's take a look at yep.

Speaker 1 (39:22)

Does the end? Do you know where the restrooms are in here?

Speaker 3 (39:25)

I think let's bounce there.

Speaker 3 (39:47)

I was not clear when you say I bothered a 1/2 a stake hole. Are you thinking of some 3 dimensions?

Speaker 2 (39:56)

Well, because I was yeah, I always think like you know, like you can like, uh, if you flip whatever sort of healthy, you look at it, if you think of it as a matrix, they're just using 011 right like you could like to, too. Like model, I like to know, like different, like topography, you use, instead of like just one, it goes like 0 − 1 like drawing in like, oh look, you see how about a different program?

Speaker 3 (40:21)

It's a good dimension for the height, yeah?

Speaker 2 (40:23)

But like if I think right now, let's just focus on A2D flag grid, let's go to work there, and then we'll see if we want to.

Speaker 3 (40:31)

I was listening and there is a graph in my mind. Yeah, yeah? Right pretty and?

Speaker 3 (40:37)

We're going to have time to date her a really

Speaker 2 (40:39)

Yeah, I know exactly if you don't have time. I have a lot of things to work and you know sooner than expected, but we can start to like, look at like, you know.

Speaker 3 (40:51)

Yeah, I think I need to spend many times for the cards that you get.

Speaker 2 (40:56)

I probably see I saw here, so let's try to let's just focus on that match to get that done. You know that's a big step forward. You know, anyway, I will see you Monday monday, so I hope you have a good weekend.

Speaker 3 (41:08)

It's see you again.