

# [Friday March 08] Meeting

## Attendees

- @Finlay Cross
- @Benjamin Ireland
- @Ronniel Padua
- @Se Hyun Kim
- 
- Graeme Woodward
- Andreas Willig

## Links

- [Link to meeting recording]
- Private (<https://app.clickup.com/t/86cuud8ud>)
- [Link to key resources for easy reference]



## Agenda Items & Notes Overview

### Objective

Topic	Description
Assignees	Who has been assigned to each project part
Git lab access	See about getting
Project proposal info	Who is this for, and why
Organise test run	Organise a test flight for the drones
Ask questions	

## Questions

### Network Protocol:

- What protocol we are using or if we must design one ourselves
- What is the data injection application

- What is the API

## Path Planning:

- A definitive measure of success
- Have they done any profiling to see most resource intensive tasks we should optimise first.
- Do we need to replace all the python with C++ or only the most intensive parts
- Is there already target tracking software

## Visualisation:

- 

## Application and Integration:

- What defines an accurate target tracking

## MINUTES

Apologies from Andreas - cannot make it this meeting

We have assigned ourselves a sub project

B - Everyone wanted to do everything

B - Finlay will work on trajectory, Raith will work on network protocol, I will help the two of them, Ronniel will do visualization and Se Hyun will do application

G. - Must be able to show what Benjamin has made

R.F - Network needs API (access programming interface) and injection

***//Ben was talking about how he is helping Raith and Finlay on sub projects 1 & 2 because those projects need two students***

G. - If a split is possible then we can do it. Keep in mind that we must be able to look at the project and say ' I did something good here'

***First part complete***

B. ENG git guest access does not show us any code, and shows the pushes and pulls but no actual code

G. Do not modify previous code, just copy it into something and I will increase access levels. I will also check security too. Feel free to use this space (*wireless research centre*)

B. First two things crossed off.

B. Information needed for project proposals?

B. We have good requirements and specifications we need to use

B. We need stakeholders, why we are doing this.

G. Insect tracking can bring biological benefits and I can send you a blurb on this project

G. I guess that any application which can track something such as logistics, less desirable application in surveillance.

G - Addendum - surveillance of a wood carving with a passive radio which could transmit information

G. One of the end users could be military or security related

G. Other applications for this sort of tag

B. Okay to stretch outside of intended application?

G. Use imagination, do a bit of research and I can give you some other applications

F. Most of the project layout is clear

B. Can we organize a test flight and get a gauge of what we need to improve?

G. Candidate dates ?

F. Mondays, Tuesdays, Fridays

G. Toby worked on this over summer, wants to do a research degree later. Got some bugs fixed, tried to get ad hoc network going.

Lots of notes in the repository. Should be find it there

I will talk to toby. Not next Monday or Tuesday, too short notice, but Fridays, and possible Monday, Tuesday the week after

F.B - Mornings would work

G. Will talk to toby and try to check if it works

B - hand in date is 18th of march

G. Will be happy to look over the draft, I am not involved in the marking, *{giving G. advice}* based on what I know on the assessment. Probably need a bit of time.

G. Do not be afraid to send me a rough draft with three days remaining instead of G. a good draft with only twelve hours left.

B - Network protocol. What protocol are we using or do we make our own?

G - Yes, (more field testing - outsider) Andreas camp. Been designed simulated and tested.

B - What is the data application injection

B. is the definitive goal to get the project to track drones?

G. add a bit more context, maximum speed and accuracy of tracking.

G. Put some metrics around what that means;

G. *{The Drones}* Must track a slow moving target to an accuracy of less than one metre. Can then work back and ask how to test that.

G. Laptop can be broadcasting position. Another UAV or remote controlled car.

F - is there already target tracking software that works?

G - yes it does work, but that is out of scope, the radar system with four radars, radars are on poles.

G. Does multilateration with four radars. Can start with knowing the position of the 'tag' laptop can be broadcasting the location. Makes a centroid for the

R.P - no profiling?

G - no profiling done yet, try and start with most intensive bits, but we hope that porting to c++ will result in a lot more performance. There is a simulator (python) and Gazebo which shows the *missed part (possibly the projected performance on a raspberry pi)*

G - What might be difficult is the python library functions, since we need to find alternatives or have to make our own.

S - Tracking is out of scope?

G - finding where the centroid point is out of scope. Node continuously saying where it is, and having it be continuously transmitting

G. One issue with A.&I (application and integration) is that it may come later, what will they do during the project. Plan how you are going to test it, if with GPS module then get the GPS module, get an app which broadcast on WIFI and hope it works on the ROS (robot operating system)/ per to peer

Otherwise may need to broaden the scope of project contribution, to ensure input is visible during assessment.

G- Cannot sit and wait just be doing stuff in the meantime. Planning towards the application is important

S> strong emphasis on system integration; what does this mean??

G. A lot will be developed under gazebo and in simulation, must be made onto the real drone a physical pix-hawk (drone model) and connect to the raspberry pi, needs to be ported onto c++, have to make it run on the raspberry pi and get the data which.

G. Taking it from the test bench for a general purpose computer to an actual raspberry pi

B - Report on costs and do not know if there is much cost in this project

G - The budget is a little tricky (350) Main purpose is to show we can run a little budget. Some things we may want to buy. Drones are complete and process was done over summer. Onboard computers work.

G. One difficulty is wireless comms, lots of dropouts. Perhaps a better antenna on raspberry pi WIFI and buy 4-5 antennae, targeting the drone swarm is 4

G. Want to be scalable from 4 to stretch goal, 10+ drones

G. May want to check how much those antennae cost.

G. Back to tracking, there may be a GPS module but not sure. Might put this into the budget. USB GPS module. Main purpose is to show that we *{FYP group}* can run a little budget, other people have meaningful budgets (ours is more limited)

G - take a look on the repository, try and look on the gazebo simulation, fire up Q ground control and see what visualization ground control and see what can be added to that.

G. Q ground control is good at visualization trajectory and shows basic stuff like level of battery. lacking on prelaunch, 4 drones on ground, try to work out if software is right and whether they have been assigned correctly. prelaunch checking is a *{inconvenience and this would help}*

b.

alerts for some faults should be display.

text scrolling up a UNIX screen from cantations and then showing information

wrap something around that to be more user friendly

B - will get earlier

G - *{I am not}* Not an academic, *{I am closer to}* a 'customer' here, Prefer Le's assessment process over my information in. Raith has a different supervisor

Find a collaboration platform