



5th Transnational Meeting Minutes Sisak (Croatia) 22 -23 May 2017

Attendees (teachers): Irene Pastor (Foia), Juan Manuel Bernal (Foia), Pablo Hernandez (Foia), Davor Malović (Sisak), Davor Lužaić (Sisak), Zrinka Tomljenović (Sisak), Ivana Šmint (Sisak), Nenad Bojčetić (Sisak), Małgorzata Jurczyk (ZS10), Wirginia Tomczyk (ZS10), Franci Uduč (Krsko), Mitja Lekše (Krsko), César Carrión (AIJU), Ignacio Seguí (AIJU).

Attendees (students): Jaime Bueno (Foia), Ivan Hernández (Foia), Tomasz Kądziołka (ZS10), Szymon Domek (ZS10), Anže Petretič (Krsko), Klemen Zupančič (Krsko), Luka Horvatić (Sisak), Goran Borovečki (Sisak), Luka Malobabić (Sisak), Patrik Miškulin (Sisak), Bernardo Kauković (Sisak), Andrija Ivančan (Sisak).

Day 22 May 2017

- At 9:00, the Tehnička škola Sisak team headed by its Headmaster, Mr. Davor Malović, welcome all the Partners.
- After reviewing the state of the project (Executive Summary) Ms. Irene Pastor (FOIA) explained the evaluation of the Interim Report by SEPIE – Spanish National Agency and the meeting for coordinators held in Madrid.
- Mr. Ignacio Segui (AIJU) presented the Corrective Actions to be taken after the Interim Report Comments by SEPIE.



Negative Remark	Corrective Actions	Status	Observations
2nd Meeting Quality Questionnaire	Remember to Sisak upload. Annex to the 2nd Meeting Minutes	Corrected by Sisak	Please pay attention to formal docs and upload all in Google Drive
Report about difficulties encountered	Collect difficulties from partners and explain better in Final Report	In Final Report explain more	Keep in mind all partners to collect and inform the coordinator
Quality Plan	Formal Document	Corrected by AIJU	Remember it is at Google Drive>1 General Info>Quality Plan
English Glossary	Collect and Complete	Preparing	We will use Google Drive and Moodle to collect
Financial Rules not explained clearly	Coordinator will explain again in 5th meeting	Corrected by la Foia	This remark is from 1st meeting quality questionnaire!
Results have not the logo or disclaimer	Review all documents, videos, etc.	In correction	YouTube Channel, minutes, agenda, etc.



- Ms. Irene Pastor (Foia) reviewed Financial rules for KA2 projects, reviewed the Exceptional Costs, timesheets for justify the work on Intellectual Outputs. An answer on the centralisation of purchases for the list of components for drones has still not been obtained. All possible scenarios are explained. It is possible that a change has to be made in the Consortium Agreement if SEPIE- Spanish National Agency does not ratify the centralisation of purchases.



- Mr. Ignacio Seguí (AIJU) reviewed the work plan and timeline. There are no delays, but the construction of the advanced drone has been advanced so that teachers have time to know all aspects of the component assembly.



- Mrs. Małgorzata Jurczyk (ZS10) reviewed the DroneTeam webpage state, the area for dissemination for each partner. She reviewed the disseminations and communication activities carried out in this period. They have created a DroneTeam facebook ZS10 user for polish news from the ZS10 school to show activities with students. This news is linked on the web as well.



- ZS10 is working with students. Lessons learned:
 - Important: explaining the basic rules for the use of drones with security.
 - Knowing components: assembly and disassembly each component.
 - Using Mission Planner software to configure the drone. Transmitter configuration and calibration.
 - Before flying, students are using the simulator software and learning how to flight a drone.
 - Connecting drone to Mission Planner. Learning the most important dates collected during the flight.
 - Learning how to check battery in Mission Planner and the importance of control the power level.
 - Different tests about 3D printing parts broken. ABS is the best material.

- Mrs. Wirginia Tomczyk (ZS10) explained the Mission Planner configuration for advanced drone in autonomous flight. First test: drone crashed. Lessons learned:



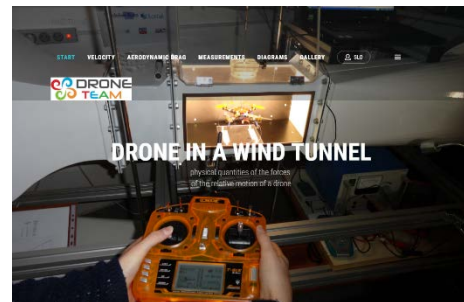
- For autonomous flight: Set AUTO mode in ArduPilot and in Mission Planer set switch to two modes: Auto and Loiter.
- Checking auto mode. First automatic mission: only waypoints without start and landing. Planning the mission is adding waypoints to the list of tasks. First you have to check the coordinates using internet or other application with GPS.
- Drone placed in home point and in good direction (the difference should not be greater than 15 degrees). Operator only puts throttle up and drone starts.



- Mr. Franci Uduč (Krsko) reviewed their dissemination activities. Šolski center Krško-Sevnica has done a lot of communication activities of our project in this period: international conferences, fairs, etc. They even received the visit of President of the Republic of Slovenia and they explained him the DroneTeam project objectives.

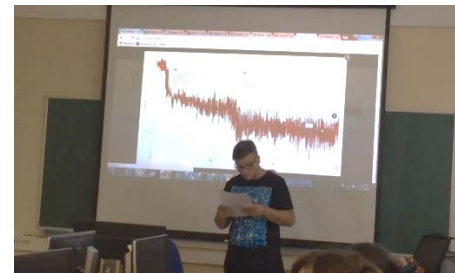


He explained the improvements in the Wind Tunnel and preparation for use with a mini-drone: Wind Tunnel has 200mm*200mm in section. The main problem is low time of battery (charging every five minutes and losing power after a minute or two). Students were involved in all process. The Wind Tunnel tests are collected in a webpage in Slovenian and English:



http://www2.arnes.si/~sssknm4/vetrovnik2_ang/iango/theme/dron.html

- Krsko students explained the work carried out in Wind Tunnel and results: making special holders, fitting the drone and force sensor, testing drone in different positions (different degrees), aerodynamic drag force in different drone position. Measurement diagrams:



- Measurement 1: Horizontal velocity vs Drag.
- Measurement 2: Aerodynamic Drag force in different positions.

- Mr. Nenad Bojčetić (Sisak) presented the improvements of advanced drone working on security parts. The propellers are the parts that break most and are also the most dangerous, because they spin at high speed and can hurt people. Therefore, the main part to add to the drone is the protection of the propellers. That is why Tehnička škola Sisak has designed a propeller guard and produced in 3D printing for all Partners' drones.



- Ms. Ivana Šmint (Sisak) presented the dissemination activities carried out in this period, highlighting the presence at the fair the second Business Conference on Unmanned aerial vehicles DRONEfest in Zagreb.



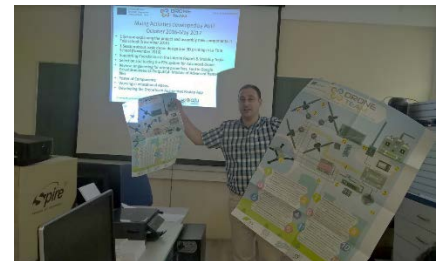
- Mr. Pablo Hernandez (Foia) and Mr. Juan Manuel Bernal (Foia) with students presented the dissemination activities during this period. Landing parts were designed and printed in a 3D printer to replace broken parts. They also presented a test to compare different types of propellers: an indirect measurement using a balance, measuring the propeller thrust. Results:



Propeller	Power				Thrust		Autonomy		Efficiency	
	50%		100%		50%	100%	50%	100%	50%	100%
	kp	A	kp	A						
5030 – 2B	0,165	8,8	0,250	18,3	***	**	****	****	****	****
5030 – 3B	0,160	9,8	0,300	25,0	**	***	***	**	***	***
5045 – 2B	0,145	11,0	0,255	24,0	*	*	**	***	*	*
5045 – 2B (HE)	0,180	11,4	0,330	28,0	****	****	*	*	**	**

Tests and results are showed in a video: <https://youtu.be/t6jLUmHzDI>

- After lunch, Mr. Ignacio Seguí (AIJU) reviewed the dissemination activities: new cover for videos with Erasmus logo updated, AIJU's newsletter, face-to-face presentations, facebook campaign, preparing videos and designing a first version of a poster of drone components (find in A0 and A2 formats at Google Drive> droneteam> 1 General Info >Templates>poster Components)



- Technical activities developed by AIJU were also explained:
 - Technical session with students and teachers in IES la Foia assembling new drone components.
 - Technical session about basic drone design and 3D printing at IES la Foia.
 - Reverse engineering for drone propellers: 3D scan and 3D design. (Find at Google Drive>droneteam>10 CAD files>propeller original)
 - Working on educational videos related to motors, propellers and explaining roll, pitch, yaw concepts. These videos will be published in DroneTeam YouTube Channel.
 - Selection and testing the FPV system for Advanced drone.
 - Developing a DroneTeam Augmented Reality App for dissemination.
- Mr. César Carrión (AIJU) taught the evolution of advanced drone assembling FPV (First Person View) system and OSD (On Screen Display) or Telemetry system. Teachers and students learnt how to assemble and configure these new components. All School teams assembled the new components.





- With these new components the advanced drone is completed. Therefore, Partners discussed about personalised drones in Schools. In next meetings we will define better possible competitions/contests with students.
- Outdoor tests: teachers&students tested the Advanced Drone flying with FPV and OSD components.

Day 23 May 2017

- Important Press Conference with Authorities. The mayor and the regional governor accompany us in a Press Conference with radios, televisions and newspapers. Consortium presented the DroneTeam project to Authorities and Press.



- Review status intellectual outputs, including English Glossary. English teachers hold a short meeting to discuss about glossary. Agreements:
 - English teachers will use the folder: English Teachers-Coaches, inside the DroneTeam Google Drive. In this folder, they can upload: interesting links related to glossary, didactic material related to English glossary or the topic of drones.
 - To build up the glossary, we will use a Google form and its spreadsheet, where we all can see the answers or add new words to make the glossary and translate the English word in the 4 languages of the programme: Spanish, Croatian, Slovenian, Polish.
- Mr. Tomasz Kądziołka (ZS10) explained the development of the application to control the drone flight. From the first approach to the evolution of development taking into account the technical characteristics of maps and geolocation. This App will be open source.
- DroneTeam Platform and List of courses to upload is discussed with examples to keep in mind all partners the same idea. In next meeting we will discuss more about that.
- After lunch time, all related to Multiplier Events is explained by Coordinator. The first multiplier event of DroneTeam project will be in Tehnogenij fair in Krsko (Slovenia). All is needed is explained.





- Mrs. Małgorzata Jurczyk (ZS10) and explained how to use a flight simulator (HELI-X6.1) and how to prepare (calibration) the station for using with the simulator software.
- Mr. Franci Uduč (Krsko) showed other simulator software (AeroSIM) explaining some exercises to improve flight skills using the station properly.
- Planned activities for coming months: school partners (Foia, Sisak, ZS10, Krsko) will work more with new components. All partners will help preparing a presentation for First Multiplier Event according to their expertise. A new version of component poster and project videos will be prepared for next meeting and for the First Multiplier Event by AIJU.
- Next meeting dates are fixed:
 - 6th Transnational Meeting: **5th-6th October 2017**. Krsko (Slovenia)
 - 1st Multiplier Event DroneTeam Project: **7th October 2017**. Krsko (Slovenia)
- After quality questionnaire about the meeting, the 5th Meeting ends giving the certificates of attendance with a great satisfaction for the work done by all partners.



Photo Group

This project has been funded with support from the European Commission. This publication [5th Transnational Meeting Minutes] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

ANNEX: 5th Transnational Meeting Quality Questionnaire Results



A) THE PROJECT AS A WHOLE

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A) THE PROJECT AS A WHOLE	1	1. After meeting, how clearly do you understand next activities to be accomplished?														
		Very Clear														
		Clear														
		Don't know														
		Unclear														
	Completely unclear															
	2	2. How much do you agree on the fact that the meeting is needed for proceeding with the project in good way?														
		Strongly agree														
		Agree														
		Don't know														
		Unclear														
	Completely unclear															
	3	3. How clearly defined are each partner's role and responsibilities as a whole within the project?														
		Very Clear														
		Clear														
		Don't know														
		Unclear														
	Completely unclear															
	4	4. In your opinion, are the next deadlines agreed during the meeting feasible?														
		Yes														
No																
5	5. Are your next tasks (until next partnership meeting) clear to you?															
	Very clear															
	Clear															
	Unclear															
	Completely unclear															
6	6. How do you think the partnership has worked so far? Please, define what you think is missing or needs to be improved.	Everithing is OK	In general, we have worked correctly	We worked a lot! Missing: using simulators for avoiding components break	All OK	Many new things in this meeting. Great work.	Complementary and coordinated group	we need more components. Difficult to buy them.	It has worked well and each partner has contributed their knowledge. Thanks to AUJU for all.	nothing missing	Great effort assembling drones. Now we have a complete drone with camera :-)	For the moment correctly	All it is OK	A very intense meeting. Now we have to apply it in our school.		



B) MEETING ORGANISATION

6. How do you think the partnership has worked so far? Please, define what you think is missing or needs to be improved.	Everything is OK	In general, we have worked correctly	We worked a lot! Missing: using simulators for avoiding components break	All OK	Many new things in this meeting. Great work.	Complementary and coordinated group	we need more components. Difficult to buy them.	It has worked well and each partner has contributed their knowledge. Thanks to AIJU for all.	nothing missing	Great effort assembling drones. Now we have a complete drone with camera :-)	For the moment correctly	All it is OK	A very intense meeting. Now we have to apply it in our school.
Did the meeting closely follow the agenda?													
Yes, very closely													
More or less													
No, kept going off topic													
Did the meeting follow the needs of understanding of partners?													
Yes													
More or less													
Not at all													
Were all partners given time and opportunity to contribute to the meeting?													
Yes													
No													
Had partners' needs and questions been given proper space and answers by the Coordinator/partners during the meeting?													
Yes													
No													
Were partners' presentations informative and relevant?													
Yes													
No													
Was the meeting venue comfortable and appropriate? (internet access, etc.)													
Yes													
No													
To what degree do you feel the entire partnership was committed to get the most out of the meeting?													
Highly committed													
Committed													
Not very													
Not at all													
Regarding on the project progress, do you think the objectives are being achieved?													
Very sure													
Sure													
Unsure													
Not at all													



5th Meeting Minutes

9	What presentation/issue in this meeting do you think was successful or more interesting?	Presentation of AIJU's Team	Every presentations	All presentations were interesting	Dissemination activity organised by Sisak partner with press. It's relevant for our project.	FPV presentations and simulators	Propeller tests and printed parts by Croatian team	Every presentation	Spanish partner presentations	Polish and Slovenian about simulators	AIJU's presentation	Presentation about app with many students attending it	The organization of the event	all presentation were relevant and interesting
10	What presentation/issue do you think could have been improved, and what can be done about this in future meeting?	Changing budgets. 20% rule. I understand but I do not know how we can apply if we will need.	All good	None	exceptional costs problem	Everything is OK	Personalised drones is clear but not defined by partners. I think in next meeting will be defined by each one	All it is OK	None	exceptional costs situation	financials, waiting for 2nd payment	Nothing	I do not know	maybe 1 day more for meeting because we spend many hours working
11	Are there any other comments you wish to make? (about project, this meeting, etc.)	Thanks Sisak team for organisation	No, everything is OK	Congratulations to the organizing partner	For the moment no	Thanks to Croatian Team	Thanks to Croatian Team	Interesting meeting	No, everything organised correctly	This project is taking a very important dimension. Congratulate all partners for their efforts and involvement	Thanks to host partner. Very nice meeting	No comments	Thank for hosting meeting	This has been the most complete meeting so far. Very intense and with many things learned that now you have to practice