

TFE4850 - EiT - Student satelite

Process report

Group 2

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Abstract

This report is a part of the result of Experts in Teamwork village TFE4850 Student Satellite, spring 2013. EiT is a interdisciplinary course, where the students from different study programs work together to achieve a common goal. It is important to use the different knowledge in constructiv manner and work well together under pressure to achieve effectivity and reach our goal.

An important part of this course is to focus on how the group work together and communicates internally. This is a report that describes this process, and we emphasize individual situations which we believe has been of great importance to the group collaboration. We have focused on using relevant theory and joint reflection to create an understanding of what happened, what we could have done differently and how to improve the process on this basis. We will also try to locate patterns of behavior that affects the group work.

Our project has the problem definition "Examine the possibility and usefulness of a groundstation network with emphasis on Carpcomm" (bare skrev noe her). We have tried to connect the ground station at NTNU up to Carpcom Space Network and investigated whether this is profitable and possible.

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Chapter 1

Introduction

This chapter will contain a short introduction to our project. That means what we're doing and what people are working on the project. It will also be discussed some short background on why we're doing this project.

1.1 The Project group

The project group consisted of 6 people from 5 different studies, so we had a wide variety of competence to use in the project. The group members can be seen in. Since most of our group members came from technology studies, we agreed that we wanted to make something physical, and not just theorize.

1.1.1 Eirik

My name is Eirik Skjeggestad Dale. I study computer technology, with specialization in intelligent systems. This means I have a good sense of general programming, and know a lot about solving difficult programming problems. This specialization is not the most relevant to this village, or any village, but if any programming bugs appear I can use it to try to solve them. What I can contribute to the group is general programming, and helping setting up the programs for the raspberry, and tuning it to the antenna system. I have also, through computer technology courses, worked on medium sized projects and hope my experience from these can help the group, specifically with writing our reports.

I chose the NUTS village because I've always been interested in space and everything that has to do with it. It's a real inspiration to know that I'm working on something that hopefully one day will be flying out in space and sending useful data back to us.

My expectations of EiT was that it seemed like formalizing things one already knew a lot, and that by extension it was quite boring and dull, with

a lot of dead time where the group did nothing. That being said, I felt that the village was interesting, and I was looking forward to the project, while I also hoped that this would give me a chance to work with people from different fields and while I thought it might feel a little forced and formalized, give me a chance to improve my teamworking abilities, and my conflict solving skills.

1.1.2 Hanne

My name is Hanne, I am studying Energy and Environmental engineering with specialization Energy and Heat Processes. This means that I have general knowledge about different renewable energy sources, thermodynamics, fluid mechanics, gas processing and energy processrs. When I choose village for EiT I wanted to challenge myself by choosing something new and unfamiliar. The NUTS Stident Satellite seemed incredibly exciting. But by challenging myself with a topic outside my study I became unsure how to apply my knowledge. I received mixed feedback about EiT from previous students. Many expressed that it was time consuming and that working in interdisciplinary groups were demanding. Taking this to consideration I expected that EiT would be challenging but with my choice of the village it would give me knowledge about something new. Regarding the interdisciplinary collaboration my expectations were both positive and negative. I looked forward to meeting new people with different backgrounds, but were unsure whether the group would mangege to work together.

1.1.3 Marius Ekerholt

My name is Marius Ekerholt, in 2009 i started studying computer science at NTNU in Trondheim. I chose to specialize in artificial Intelligence. Since 2012 i have been working for a development company. I have alot of exspeience in developing systems on web and mobile. I am good at finding solutions and i like working in groups. In this project i can see myself contributeing with technical insight and resolving different problems the group encounter. I chose this village because i have a generel interest in space and the technical aspect of it. I also looked forward to working with something outside my everyday activities. Besides the variation i also thought that the most important focus for EIT was to learn to work in groups with unfamiliar faces. I looked forward to meet new people with different background and work as a team despite our differences. I hope to gain new knowledge about different group processes and some knowlege about sattelites. I will do i best to make EIT an exciting project.

1.1.4 Børge

My name is Børge Irgens. I study theoretical physics at NTNU with primary focus on quantum entanglement. The reason I chose this EiT village is my interest in space physics and technology. My specialisation is not strictly relevant to the work I do in this course, but my skills in analysing physical systems (e.g. satellite orbits) and mathematics in general has been useful.

I've heard mixed reviews from other students about EiT, e.g. some people had problems with conflicts with other group members. This meant that I came into this project with kind of low expectations, but luckily it seems that everyone wants to do well on this course. Now I'm looking forward to hopefully learning a lot about both teamwork and satellites.

1.1.5 Hallstein Skjølsvik

My name is Hallstein Skjølsvik. I started to study electrical engineering in 2009 at HiST (Høgskolen i Sør-Trøndelag). I completed my bachelor degree in the spring 2012. The same autumn I started a two year master program in electronics at NTNU. At NTNU I specialize within design of digital circuits. In addition to studying I have been working part time as a shift leader at a grocery store until 2012. After I completed my bachelor degree I got a part time job at Kongsberg Seatex, where I work with maritime electronics. Therefore do I have some experience with working in a team. I chose the NUTS village at EiT because I always have been fascinated by space exploration. A student satellite seems like an interesting project where I can learn something which is not normally covered by the digital design masters program. My expectations to this project is to learn more about the process of launching a satellite in to space. In addition I hope to get in touch with people from a different field of study, but with similar interests as me.

1.1.6 Leif-Einar

I have an education in electronics service and are now studying electronics at NTNU. In my studies I have specialised in radio and digital communication including satellite communication.

My expectations for EiT is that we will get continuous feedback on how we work together as a team. Because of this I believe that the team eventually will work good together.

Chapter 2

The Project

This chapter contains what we did during the project in terms of the team process. We will discuss the different process elements used and how it affected the group, and helped us improve the teamwork within the team.

2.1 Teamwork agreement

The teamwork agreement is an agreement that goes outside the actual project description, and it is defined by the members of the group, based on what each group finds important. Early in the project we therefore wrote down a few key points that were important in terms of teamwork for the group members. The signed teamwork agreement can be seen in Figure 2.1. We broke the agreement into three parts, delivery, wellbeing and learning. The delivery part contains all the points concerning the effort everyone is to put in, and what we're expecting in terms of quality and quantity of work. In the wellbeing section we wrote down what kind of atmosphere and leadership we wanted, as well as any social additions, like eating lunch together each wednesday. In the last section, learning, we wrote down how we wanted to deal with feedback and how to achieve good progress throughout the project, while keeping everyone up to speed.

2.2 Milestones

In order to keep the progress of the project steady, we decided we should define some milestones, to help give some perspective on how far we had gotten and how much remained to be done. This was also in the teamwork agreement, and it was one of the first things we did after we finished with the agreement.

The first milestone was to have our project definition ready to be handed in, and the components we would need to be ordered and on their way. This was scheduled for 13th of February.

Samarbeidsavtale for gruppe 2

30. januar 2013

v. 1.0

Leveranse

- Alle stiller til avtalt tidspunkt, dersom en ikke kan komme skal man gi beskjed til gruppen (SMS). Dersom samme person ofte kommer for sent skal det tas opp i drøftingsmøte.
- Alle skal delta likt på både prosjekt- og prosessrapporten, og har medansvar for at kvaliteten på arbeidet skal holde kravene til minimum B.
- Vi starter dagen med et daglig oppdateringsmøte og planlegging av dagen som kommer.

Trivsel

- Vi ønsker å ha det artig og trivelig. Vi har trivsel i fokus, fordi det er letttere å jobbe i et godt samarbeidsklima. For å bidra til dette vil vi lage teambuildingøvelser som for eksempel felles lunsj.
- Vi setter opp milepæler/delmal underveis for å unngå økt arbeidsmengde mot slutten av perioden.
- Vi vil ha flat ledelsesstruktur og rullere på rollene som ordstyrer og sekretær. Beslutninger skal tas demokratisk etter et møte hvor alle har kommet med sine synspunkter.
- Ved alvorlige avvik/brudd på samarbeidsavtalen skal det tas opp på et eget møte.

Læring

- Alle skal komme med konstruktive tilbakemeldinger, slik at vi kan forbedre arbeidet med prosjektet.
- Dokumenter som møtereferater o.l skal legges ut på itslearning og alle skal holde seg oppdatert på informasjonen som ligger der.
- For å få optimal framdrift er det viktig at alle gruppemedlemmer gir og søker hjelp av resten av gruppen.

Avtalen skal evalueres og evt. revideres om 5 uker

Underskrevet av:

30. januar 2013. Trondheim

Børge Irgens
Børge Irgens

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Eirik Skjeggestad Dale
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Hanne Thorhaug Andreassen
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Leif-Einar Hustoft Petersen
Leif-Einar Hustoft Petersen

Hallstein Skjølvik
Hallstein Skjølvik

Figure 2.1: The signed teamwork agreement

The next milestone was to connect the box to the ground station, so we could start the testing. Since the blue-box project later tanked we moved this milestone, to the 20th of Mars.

the last two milestones we set up for this project was to finish testing, and to finish the report, on the 17th and 24th of april, respectively.

2.3 SITRA-exercise

One of the first group exercises proposed by the facilitators was the SITRA-exercise. In this exercise we were handed a SITRA-sheet where different aspects where colour coded, and we were to evaluate the previous group reflection based on these colours. The colours helped evaluate the group reflections and give us an idea of where on the grading scale the reflections was, by giving different aspects, as shown in Figure 2.2.

During this exercise the group discovered that we had written our first group reflection chiefly by explaining a situation followed by a reflection, both of them quite short and uninformative. This led to a larger focus on a deeper group reflection, with more theory and action considerations where that was applicable. The group felt that the exercise helped give a more objective view on how to write the group reflections, based on how they would be graded.

SITRA-øvelsen

Fargelagte vurderingskriterier

Karakter	Nedvendige forutsetninger		Gruppeprosessen over situasjoner som gruppa har trukket fram	Aksjoner for å bedre samarbeidet om prosjektet
	Situasjoner	Teori		
A Fremragende prestasjon som klart utmerker seg	Situasjons-tortellinger som synliggjør hvordan den enkeltes handlinger har innvirket på prosjektet.	Bruker et relevant begrep.	Gruppa synliggjør meget godt sin utvikling i samarbeidet i gruppeprosessen gjennom situasjonene som er trukket fram, og reflekterer meget godt over: • hvordan gruppa kommuniserer og samarbeider og andre handlingsmønstre og væremåte i situasjonene • hensiktsmessigheten av de forskjellige handlingene forbedringer i prosjektsamarbeidet.	Gruppa gjer og evaluerer meget godt: • endret handlingsmønster for å forbedre en situasjon • videreføring og forsterking av et tiltak som fungerer
B Megt god prestasjon	I prosjektarbeidet.	Enkelte teoretiske aspekter flettet inn.	Refleksjonene synliggjør meget godt: • hvordan gruppa kommuniserer og samarbeider • hvordan tverrfagligheten i gruppa påvirker kommunikasjonen	Gruppa gjer og bare delvis begynner med: • endring av handlings-mønster for å forbedre en situasjon • videreføring og forsterking av et tiltak som fungerer
C Jenig god prestasjon			Gruppa reflekterer over den enkeltes handlingsmønster og væremåte i situasjonen, hvordan de gjør tilslukte meldinger til hverandre, og hvordan dette påvirket prosjektsamarbeidet.	Gruppa nevner enkelte ting de mener å få til for å bedre samarbeidet om prosjektet.
D En akseptabel prestasjon		Newer-teori uten å bruke den.	Refleksjonene synliggjør til en viss grad: • hvordan gruppa kommuniserer og samarbeider • hvordan tverrfagligheten i gruppa påvirker kommunikasjonen	
E Tilstedsstiller minimumskravene	Situasjonene som nevnes er generelle. Enkeltindivid ikke synligjort.		Studentene beskriver teamets arbeid og redigerer kronologisk for prosessen. Noen teknikker som har vært benyttet, og noe generell erfaring de har fått trekkes fram. Ingen refleksjon om hensiktsmessigheten ved egne handlinger.	
F Ikke bestått	Mangelfull oppsynskontakt over hensidene i gruppa.	Mangelfull bruk av teori og begreper.	Besvaretene er en ren kronologisk beskrivelse av mølene som ble holdt. Fravær av refleksjon og erkjennerse (besvaretene ofte med uttauen som: "Vi hadde ingen konflikter" og derfor ingenting å skrive om i EiT".	Se for øvrig retningslinjer for prosessrapporten og "Vel-læringen til studenter i EiT".

Figure 2.2: The SITRA-sheet given for the SITRA exercise

2.4 The Sosiogram

During the project the facilitators went around to the groups, analyzing how the communication within the team was during a discussion. They made a sosiogram of it by dotting down lines whenever someone talked to individuals or the group as a whole, as we can see in the sosiogram from our group, seen in Figure 2.3. Note that when someone talked to the group in general, it's represented as a line towards the center dot of the "table".

What the group saw from the sosiogram was that the two people sitting on their laptop during the meeting, even though they were doing work relevant to the discussion, was much less active in the discussion. The group decided that this was something we didn't want, so from now on every meeting was pc-free, unless someone was specifically asked to either take notes as a secretary, or check something that we would need in the discussion.

In retrospect this helped make everyone active in the discussions, since we also saw from the sosiogram that everyone was about as active as the others, with the exception of those using their laptop.

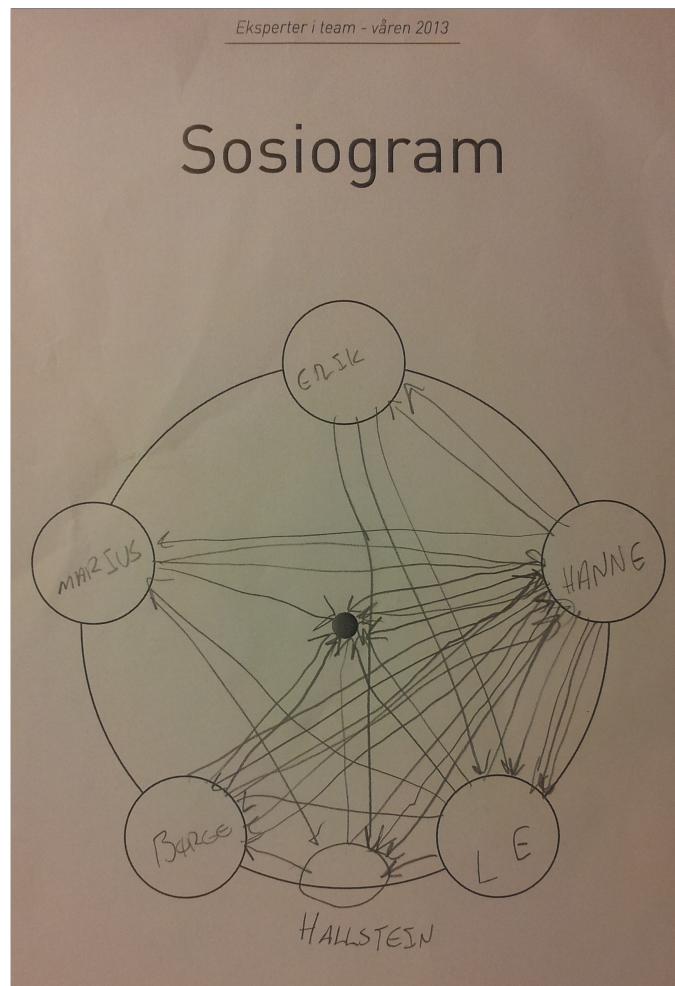


Figure 2.3: The Sosiogram we got from the facilitators after they observed a discussion in the group

2.5 February 13, Changing project definition

During our project we met some obstacles, which made us change our project definition. We want to emphasize this day since we feel it represents how our group coprehence with this set-back.

When we started our project we had decided on one type of groundstation network that we wanted to test and use. We had spent time exploiting the BlueBOX network and research was done by every groupmember. We learned that we were dependend on external partners to complete and work with our project, but were optimistic that we would get the information we needed. We were surprised when we got the news that Aalborg University did not have the opportunity to provide us with the needed information about BlueBox. Hallstein and Leif-Arne who had put in a lot of time understanding some of the technical aspects of BlueBox, felt that they had worked in vain and lost their motivation. As Weeland describes the fundamental attribution error (source) we started blaming others for our defite. "Its the Aalborg Universities fault that we have to start from the beginning, why would they not give us any help?", "They could have told us this sooner" and " Its not our fault!" was expresses from different members.

As the motivation went down we all became ineffective and unproductive. But putting the blame on others would not help us get any further with our project. We took Weelands advice and started finding the factors that was blocking the group progress. By not blaming "the other guy", and remembering that all group members have responsibility for group success and failure got us more work willing.

As a group we wanted to focus on creating an effective group (HØY PRESTASJONSGRUPPE) by following Schwartz ground rule nine, which details decision making. We had earlier decided to have a flat structure within the group, without any appointed leader, and a democratic decition-making process (kilde). This time we would ensure that the project was feasible, and used ground rule two. This rule stated that each member share all the relevant information she or he has that affects how the group solves a problem or makes a decision. We then put up a checklist over other ground station network that could be sucessfull for us. Every group member gathered information about one of the network that could be appropriate for the project. We then conducted a round where each member presented what they had found, and shared ther views. We then discussed which alternative that would suit the group best, and then according to our "group agreement" (source) voted. The voting were unanimous as there were huge benefits by choosing one option, and we felt that we reached consensus since we all were well informed before the voting. Changing the project definition led to a discussion of delegation of tasks.

With a group consisting of six people with different qualities and interests we had to dicusse how we wanted to cooperate to solv our new project.

First each member presented his ability and knowledge that could be of usefull to reach our goal. Though we are a group consisting of different backgrounds (heterogen gruppe) we were determent to use this as an advantage. As Johnson and Johnson wrote, "Tomorrow's effective groups (including large groups such as organizations and nations) will be those that have learned to be productive with a diverse membership". This led to ground rule nine(source) where we had to discuss an undiscussable issue. Some of the groupmembers felt at ease taking on different work tasks. Hanne whos study program differences the most from the core of the project, was a bit sceptical to how her compentance could be used. She had to confess to the group her theoretical weaknesses that made her unsuitable for some tasks. To solve this we took action and shaped the project so that every member got an assignment where they could use their expertise. In this way everyone felt that they played a significant role in reaching our common goal.

Avsnitt om: - hvordan dette fungerte, bruk av reglene - var aksjonene en suksess, - påvirkning på gruppen

2.6 March 13, Solving a conflict

During the work period the group has been poor to start at the agreed time. In our group agreement it is written that if you come late to the agreed time the person must inform the group. This point has so far been adhered by all members, but it does not prevent people from being late. As one member of the group has consistently been late to group meetings the rest of the group decided to take this up. Even though he follows the group agreement with giving notice, he breaks the agreement of being on time. As this has been happening over time the rest of the group felt that it affected the working progress. Either the group waited until all the members came and lost working time, or they had to use time on getting the person concerned up to speed. Either way the situation would be better off, by discussing this with the person concerned.

As the group planned to bring it up, we noticed that our flat group structure made it difficult. Nobody wanted to be the "bad guy", but without any announced leader we had come up with a solution. As we did not want to be a group that avoided conflicts to help a member save face, we wanted to be an effective group. As our group had built trust and a sense of maturity we agreed that each group member would be strong enough to take negative feedback directly KILDE. To find a way to solve this problem on a constructively manner we followed one of the three effectiveness criteria's written by Schwarz (p23). Schwarz (kilde) categorize problem solving as one of the primary group processes an effective group should manage. We wanted to use a systematic approach to the problem and find a solution after hearing and understanding the cause. Hanne took on the role as leader for the conflict handling. As Hallstein, the group member concerned, finally showed up, we sat him down to discuss the issue. On behalf of the group Hanne then told him how the group felt about the situation and how it affected the work process and collaboration. Hallstein felt that he had a lot of other schoolwork to deal with, but understood that he had to prioritize the group. He also stated that the group used to be unproductive at the beginning of the day, and that this was not motivating when he had other things to do. By taking this conflict up for discussion the group now knew what Hallstein felt and what the problem really was. To prevent further members from being late the group wrote a new point in the groupware agreement. We wanted to form a rule that would punish the member that broke it but would work as an advantage for the others. It resulted in a cake rule; if one member was late he or she had to bring a cake to the next meeting.

By identifying the cause of the problem, evaluating and selecting a solution the group felt that this conflict had contributed to personal growth. Hallstein had pointed out a problem with the groups effectively that the rest had not thought of as the cause of the problem.

Notater: identify the cause of the problem, evaluate and select a solution, implement it and evaluate it. (p 23)

Chapter 3

Group reflection

At the end of the project the group sat down to reflect on the experiences and teamwork done during the project. We all came into the project with different expectations and academic background. We had all heard different things about the course, but we all had the impression that there would be potential conflicts and a lot of team exercises. The group had a wide variety in terms of academic background, and the project we chose to do allowed for using the skills of everyone on the team, and we had good communication and discussions where people showed their point of view, with no one being too quiet. We also feel that we allowed for everyone to use their skills and knowledge, and that we worked well together interdisciplinary.

The group had a good social tone from the beginning, and everybody agreed on most decisions, or we discussed it and reached a decision. This meant that the group had fun during the project, but we didn't get any larger conflicts, and therefore no more hands-on experience with conflict solving. The team exercises first and foremost made us more aware of how we worked in a group, and how our behaviour and level of involvement in the project affected the group. It also formalized quite a lot around conflicts and group roles, which was not hugely useful in this project, seeing as the group worked reasonably harmoniously, but all the group members agreed that the information would be very useful if conflicts were to arise later.

Bibliography

- [1] *Navn på item.* October 07 2012. Available at: <www.wikipedia.org>