1st Meeting Memo 19.03.2020-Thursday(2 pages)

• **Select chairperson and recorder**
Halil I. Uluoglu

• **Assign 1 requirement and 1 sub-problem for each member to document**
Halil I. Uluoglu
Requirement: 2.Shall allow experts on Earth who are not physically in the same space to collaborate and develop instructions for astronauts
Sub-problem: 2.Solution Instruction Developing
Simon Plank
Requirement: 5.Shall disinfect the fixed medical equipment at the level required for surgeries
Sub-problem: 5.Disinfecting
Lennart Jehle
Requirements: 6.Shall work on Mars
Sub-problem: 4.Assembling
Erik Kalmar
Requirement: 8.Shall have high redundancy
Sub-problem: 3.Parts identifying
~~**Abrhalei F. Tela**~~
~~Requirement: 3.Shall minimize a chance of incorrect assembly~~
~~Sub-problem: 4.Assembling~~
Lukas Mitmasser
Requirement: 7.Shall have high robustness
Sub-problem: 3.Parts identifying
Masoud Rastgou
Requirement: 1.Shall assist astronauts to repair robotic surgery equipment
Sub-problem: 5.Disinfection
Charles Rambo
Requirement: 4.Shall minimize total time required to fix the medical equipment
Sub-problem: 1.Status Report Producing

PS: Continue with the second page.

	1.Status Report Producing	2.Solution Instruction Developing	3.Parts Identifiying	4.Assembly	5.Disinfection
1.Shall assist astronauts to repair a robotic surgery equipment					Masoud Rastgou
2.Shall allow experts on Earth who are not physically in the same space to collaborate and develop instructions for astronauts		Halil I. Uluoglu			
3.Shall minimize a chance of incorrect assembly					
4. Shall minimize total time required to fix the medical equipment	Charles Rambo				
5.Shall disinfect the fixed medical equipment at the level required for surgeries					Simon Plank
6. Shall work on Mars				Lennart Jehle	
7.Shall have high robustness			Lukas Mitmasser		
8.Shall have high redundancy			Erik Kalmar		

- **Fix times for your team's regular weekly meetings**

Tuesday, 24th March - 04.00 pm

2nd Meeting 24.03.2020-Tuesday(1 page)

- **Everybody introduces their problem documents to the team**
  - ❏ Everybody has introduced their individual “problem documents” to the team using Hangout connection. It took approximately one hour to present the documentations.
- **Team gives feedback about each document**
  - ❏ Some formative feedback has been given in particular documents.
- **If you didn’t fix the next meeting already do that**
  - ❏ Next meeting is 04.00 pm on Tuesday.
- **Record memo to google docs and share link at your team’s Slack channel**
  - ❏ Memo for today created and shared to the team via Slack channel of team.

- **Fix times for your team’s regular weekly meetings**

Tuesday, 31th March - 04:00 pm

3rd meeting 31.03.2020-Tuesday(1 page)

- **Everybody introduces their idea documents to the team**
  - ❏ Everybody has introduced their individual "idea documents" to the team using Hangout connection.
  - ❏ It took approximately one hour to present the documentations.
- **Team gives feedback about each document**
  - ❏ Team gave constructive feedback to everybody. Some of the students need to redesign their assignments to meet the design specified by the teachers
- **Create the team´s morphological table**

Morphological Table

	Status report producing	Solution instruction developing	Parts identifying	Assembling	Disinfecting
Course	Video	Phone Call	Manual Search	Video Instructions	Boiling
Reference	Symbology and satellites	Simulations for same situations	2D-Barcode Alphanumeric	Robot Crane	Chemicals, germicides
Idea 1	Optical Satellite	Using compression algorithms to send files	2D-camera to sense parts	Vice	Ventilation sensors
Idea 2			360° 3D-Cameras	"Glue" surfaces	Use Mars-environment
Idea 3				3d printing parts and tools.	
Idea 4				XR/VR instructions	

- **Fix times for your team's regular weekly meetings**

Tuesday, 7th March - 04:00 pm

4th Meeting 02.04.2020-Thursday(1 page)

- **Select three concept using team's morphological table**

Concept 1: Charles and Masoud
Optical Satellite+Using compression algorithms to send files+360° 3D-Cameras+3d printing parts and tools+Chemicals, germicides
Concept 2: Halil and Simon
Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Concept 3: Lukas, Lennart, Erik
Symbology Satellite+Phone Call+2D Camera to sense Parts+3d-printing+Boiling

- **Fix times for your team's next meeting**

Tuesday, 7th April- 02:00 pm

5th Meeting 07.04.2020 - Tuesday(1 page)

- As don't panic team, we divided 3 sub-groups and we assigned one concept for each sub-groups. In this meeting, we presented our documentation to the group.
- We have a total 88 primary and secondary causes for People, Equipment and Environment categories.
- We combined three documents into one document. For this document click here.

- **Fix times for your team's next meeting**

Tuesday, 10th April- 02:00 pm

6th Meeting 10.04.2020-Friday(2 pages)

Don’t Panic PUGH Table

Requirement	Importance	Reference: Symbology and Satellites+Simulation for same situations+2D barcode Alphanumeric+Robot Crane+Chemicals,germicides	Concept 1: Optical Satellite+Using compression algorithms to send files+360° 3D-Cameras+3d printing parts and tools+Chemicals, germicides	Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment	Concept 3: Symbology Satellite+Phone Call+2D Camera to sense parts+3d-printing+Boiling
1.Shall assist astronauts to repair robotic surgery equipment	3		+1	+1 (MR-Lit.)	+1
2.Shall allow experts on Earth who are not physically in the same space to collaborate and develop instructions for astronauts	2		0 (Halil - Exp.)	+1 (Simon-Exp.)	0
3.Shall minimize a chance of incorrect assembly	2		+1	+1	0
4.Shall minimize total time required to fix the medical equipment	1		-1	0 (Erik-Lit.)	-1
5.Shall disinfect the fixed medical equipment at the level required for surgeries	2		0	+1 (CR-Int.)	-1
6.Shall work on Mars	3		0	+1 (Lennart - Lit)	0
7.Shall have high robustness	1		+1 (Lukas- Lit)	0	0
8.Shall have high redundancy	1		+1 (Halil-Exp)	0	+1
TOTAL		0	6	10	1

Individual

- Write a weekly report before your next meeting

    - We provided into Slack channel
- Attend meetings

Team

- Have at least one meeting before Wednesday workshop
- In this meeting apply new meeting structure using the weekly reports
- Write the team meeting memo following the new meeting structure and share the link to it
- Create the Team PUGH table and the associated Evaluation Document using the concepts generated last week(at least 3 concepts)
- Create evaluation table
    - As team we swapped our concept with sub-groups
    - Concept 1: Charles and Masoud:Symbology Satellite-Phone Call- 2D Camera to sense Parts-3d-printing-Boiling
    - Concept 2: Halil and Simon:Optical Satellite-Using compression algorithms to send files-360° 3D-Cameras-3d printing parts and tools-Chemicals, germicides
    - Concept 3: Lukas, Lennart, Erik:Video-Simulation for same situation-2d barcode alphanumeric-Xr/Vr instructions-Mars Environment

• **Fix times for your team's next meeting**

Tuesday, 14th April- 02:00 pm

7th Meeting 14.04.2020-Friday(1page)

- We have completed our individual weekly report. For better output for our team we discussed our concerns and stalled jobs.
- As 3 subgroups we presented our Evaluation Tables to the whole team.
- We give feedback to each other about Evaluation Tables.
- We combined three documents into one document and we shared the link to the group.(Pugh table and Evaluation Tables)

8th Meeting 23.04.2020-Thursday(2 pages)

During this meeting we decided who is going to work on what requirement and what kind of experiment the team member does:

Halil - Physical Experiments
8.Shall have high redundancy
Concept 1:Optical Satellite+Using compression algorithms to send files+360°
3D-Cameras+3d printing parts and tools+Chemicals,germicides
Concept 1: Optical Satellite+Using compression algorithms to send files+360°
3D-Cameras+3d printing parts and tools+Chemicals,germicides
Question: Is taking raw material, printing 3d parts, and tools better than only taking necessary tools in Mars exploration?
2.Shall allow experts on Earth who are not physically in the same space to collaborate and develop instructions for astronauts
Concept 1 : Optical Satellite+Using compression algorithms to send files+360°
3D-Cameras+3d printing parts and tools+Chemicals,germicides
Question: Is communication with the Huffman Coding algorithm as good as from being in the same simulation room at Mars for instruction solution developing?

Simon - Physical Experiment
2.Shall allow experts on Earth who are not physically in the same space to collaborate and develop instructions for astronauts
Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Question: Does working together via phonecall make it easier to find a solution than simulating an issue on earth without constant connection?

Lennart - Literature Review
6.Shall work on Mars
Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Question: Does concept 2 work better on mars than the reference concept?

Lukas - Literature Review
7.Shall have high robustness
Concept 1: Optical Satellite+Using compression algorithms to send files+360°
3D-Cameras+3d printing parts and tools+Chemicals,germicides
Question: Can I be sure that the (spare) parts generated by the 3D-printer are robust enough if we use materials just from Mars?

Charles - Interview
5.Shall disinfect the fixed medical equipment at the level required for surgeries

Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Question: Is Concept 2 better than the reference from the perspective of disinfecting the fixed medical equipment at the level required for surgeries?

Erik - Literature Review
4.Shall minimize total time required to fix the medical equipment
Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Question:

Masoud - Literature review
1.Shall assist astronauts to repair robotic surgery
Concept 2: Video+Simulation for same situation+2d barcode alphanumeric+Xr/Vr instructions+Mars Environment
Question: Is Concept 2* better than the reference idea* from the perspective of assisting astronauts to repair robotic surgery equipment?

- **Times for your team's next meetings**

Monday, 27th April- 05:00 pm

9th Meeting 27.04.2020-Monday(1 page)

- The team shared their weekly memos together and talked about issues and how to solve them.
- Every member presented their Experiment Design Documents as well as the results and insights to the group.
- If needed the other members gave feedback and additional ideas to the documents.
- We combined each document into one document(Click here)

10th Meeting 30.04.2020-Thursday(1 page)

- We have discussed finalizing the documents for the group and individual output table.
- We discussed finalizing the experiment document with the interview document. Also, we submitted our last experiment documents after the team's feedback.
- Agreed on video concept and creating video materials as a group and making one video for the presentation.