

Ideas for HamProjects.ch

(Homework for SO#4 meeting of 15 March 2022)

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Introduction

please read first our document "[SO4 Meeting 22 Feb 2022 Projects List USKA.pdf](#)".
Thank you! I do not duplicate text that is already contained there in my document.

1. Framework (Web Platform)

HamProjects.ch (part of HamEcosystem)						
Loop of Management Tasks (frequent management team meetings) <ul style="list-style-type: none">• Promote this platform in wide circles far beyond Amateur Radio !• Collect project ideas (all parameters, including target group analysis)• Publish approved project descriptions to all target groups beyond A.R.• Search for project team members• Assemble project team, designate team leader(s) and start the project work• Assist progress of each project team if so desired (funding, partnerships etc)• Publish results on project completion to all target groups beyond A.R.• (Define and continually adjust the rules of this HamEcosystem framework)						
Project #1 working.....	Project #2 working.....	Project #3 working.....	Project #4 working.....	Project #5 working....	Project #6 working..	Project #7 working.....
While doing this, establish and maintain cooperations with other MINT-oriented bodies and communities (private, industrial, professional organisations, government initiatives, other countries' MS, etc). This is TWG (Technology Working Group) on national level, to be hopefully supplemented soon at IARU R1 level !						

This intention is based on ideas by Lisa Leenders at the 2020 IARU GC as well as of the GC-approved IARU R1 Technology Working Group (TWG) proposed by SARL.

2. Comments

HamProjects.ch is a new, not yet operational part of our HamEcosystem in Switzerland. We (USKA) already have HamWebinar.ch, HamGroups.ch as well as free BBB.

1. Hamprojects.ch's purpose is to stimulate STEM interested people to propose projects they wish to accomplish in a Team. This is much more fun than working alone, besides being much more efficient. Special attention should be brought to young STEM talents.
2. It is obvious that we have to embrace also themes that are beyond "traditional short wave radio".
We have always been defining ourselves as "Ambassadors of modern Digital Communication Technologies". We should live this.
3. Typically the projects are interdisciplinary and require at least three to five people. Upper limit is to be found, perhaps twenty or so in the same team ?
4. Projects can be done completely online, or completely presence, or combined/hybrid.
5. Often, project work requires resources or competencies that do not yet exist in our amateur radio communities. This requires seeking cooperations (win-win) with other communities (hopefully vice versa at a later stage), including industry, education, politics, as well as government initiatives regarding "Digital Transformation".
6. Absolutely indispensable: in order to reach our ambitious 10 year IARU STF goal: We must have "Digital Transformation" take Center Stage -> every single project has at least some digital content.

3. Some concrete Project Ideas (the possibilities are unlimited!)

The following ideas require teams of several persons, in most cases with different qualifications. **Creating project ideas has to be left to our members !**

1. Direction Finding Network
Location of VHF/UHF stations or sources of unwanted emissions (EMC).
Network of remote controlled Direction Finders, displaying locations on a map.
2. National Air Quality Monitoring Network (IoT)
(similar: 2b national radioactivity monitoring network)
Build a network of Air Quality Sensors connected by LoRa/LoRaWAN to display the Air Quality situation on a map.
3. Improve speech quality in FreeDV
(open) FreeDV does not provide satisfactory audio quality, same as proprietary systems used in Amateur Radio. Improve this is a very interesting challenge!
4. Emergency Communications: Develop low cost alarming device that work in case of a power grid blackout or phone failure to alarm EmCom people, firefighters, ambulance, police etc. (LoRaWAN based)
5. HamSci.org: Weather Project is an already existing example.
Follow / support this and other HamSci.org project work (e.g. partial projects)
6. EMC Reconnaissance. Have SDR equipped Drones/UAV fly around to map the EMC situation in the region and locate sources of unwanted emissions.
7. Antennas: Measure antenna radiation pattern with SDR equipped drones/UAVs
8. SDR: Develop hard and software to operate a remote HF SDR receiver in the vicinity of your station, with minimum latency (RTC), connected by UHF/SHF/HAMNET.
9. Connect Servers on the HAMNET to achieve a high availability of information, e.g. for EmCom information collection and situation display. Self synchronizing and fault tolerant.
10. Home Automation Project: how do I automate my Home combining IoT with A.R. ?
11. Uses of blockchain technology in Amateur Radio and other wireless applications
12. how to make money with Helium cryptocurrency network
13. Develop a crowd sourcing project
14. Develop an automatised "sigint" classifier for Intruder Watch
15. Health application: On your jogging, walking, biking or hiking tours, how to transmit health relevant data alongside GPS coordinates via LoRa/LoRaWAN in regular intervals to my home base ?
16. How do I win a contest by implementing Artificial Intelligence into my station?!