Work Plan for First Month

DOWNLINK:

1. Develop a packet structure in the downlink, which contains necessary details on train index, nonce values and so on. Pack that with other reliability techniques such as CRC

2. Come up with appropriate encryption algorithm and apply on the packet from above step

3. Figure out which modulation technique is most suited to transmit bits and yet transfer energy to the receiver. For instance, BPSK is not suited as regular phase changes are reported to not help energy transfer. (You have to do literature survey to complete this step)

4. After the above step, pass the modulation signals through a channel which models the communication channel between the Balise and the train. (I can help you to model this)

5. At the balise, based on the received signal, the balise must be able to invoke an appropriate decoding method, decryption, and finally a MAC algorithm for the UPLIK.

6. To facilitate the above step, we have to get ready with decryption algorithm, MAC algorithm and corresponding techniques to authenticate the train.

7. Let's try to come to this point, and then reserve the UPLINK for next month

Material link on courser:

https://www.coursera.org/learn/crypto/home/week/2

https://www.coursera.org/learn/crypto/home/week/3

https://tools.ietf.org/html/rfc2104