  
**Design Studio #4 - Weekly Progress Report #6**

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In the previous week, we discussed another option for the communication of the robot with the ground station. The proposed method was to use mobile internet connection to send the control commands and the real time video that the robot captures. This operation requires both transmitting and receiving the data. The data to be sent is very big due to the existence of the video. Therefore we concluded that if the operation will be done through internet, the LTE band should be used. After that, we made a research about the modules that connects the Raspberry Pi to the internet using LTE band. The result of that research showed us the prices of these modules are very expensive. Moreover, transmitting the control data over the mobile internet in real time is complicated and results in a delay which creates an important problem for the control of our robot. Considering these two disadvantages, we concluded that using the mobile internet connection is not a good idea, therefore we chose our main path in this project as FPV & RC transmitter, leaving the LTE case as plan B.

After the determination of our main approach for the communication part, we moved on to the specification tests that we plan to conduct. As stated in the rules, the remote control of the robot is expected to be reliable from a distance of at least 30 meters. Therefore, we decided to check the range of our transmitter that we are planning to use in the project, which is 6 channel RC transceiver. It is an RF transceiver that utilizes the carrier signal with the frequency of 2.4GHz. It sends the data from the transmitter in the form of a PWM through six different channels, meaning that we are able to control 6 different variables in an analog manner. To check its range, I powered the receiver and connected a servo to it to observe the operation. In home, it works perfectly everywhere, therefore I decided to move outside and left this setup with my sister as observer at home. After some trials, I realized that the system works very well from around 100 meters although there are three walls between the transmitter and the receiver. As a result, we can say that this RC transmitter can be used in our project

The next test that we are planning to conduct is to check the operation of the FPV in different distances and conditions. For this purpose, we have borrowed an FPV set from a friend and we are planning to test its operation next week. (Fatih ÇALIŞ)