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| **Group** 8 | Secure Communications Link |
| **Major:** | **Team members:** |
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**Design Objectives**

The classified death star plans must be transmitted to a rebel server in a cost-efficient manner, without detection, in a time-efficient manner. Once the data is received the rebel server will broadcast the plans to expose the weaknesses.

Objective 1: The supplied USB that consists the 100 PNG images will be able to identify the 10 images of the death star.

Accurately distinguishing the images refers to the Raspberry PI’s ability to examine all 100 images, disregard the 90 images that are not the death star, and then verify the death star images include weaknesses.

Objective 2: The data must be transmitted quickly from the Raspberry Pi to the rebel server.

Quick data transmission means our system will facilitate all necessary actions in no more than 600 seconds. The transmission process occurs from the Raspberry Pi to the Linux server. The Rebel server will be a Linux server. Failing to transmit the data in less than 600 seconds will result in detection of the system.

Objective 3: The data will be transmitted securely and then be properly verified.

Transmitting the data securely means our system will send data over an unmonitored communication protocol. Monitored communications include Wi-Fi, Bluetooth, cellular, and IO Ports. When the transmission process between the Raspberry Pi and the Linux server occurs, the data will be verified. Properly verifying the data means the MD5 Checksum will be sent back to the Raspberry PI to verify the data arrived as expected.

Objective 4: The Linux Server will filter out the weaknesses of the 10 PNG death star images.

The 10 images of the death star have red circles indicating weaknesses. Filtering out the weaknesses includes using software to zoom in on the death star images and remove everything except the red circles on the death star. Doing so will specifically show where precisely the weakness is.

Objective 5: The Linux Server will broadcast the 10 weaknesses.

Broadcasting the received images means that once the Linux Server interprets the death star weaknesses, the weaknesses will be displayed on a mobile application for all to see. Doing so exposes the weaknesses and completes the mission.