Background:
- 700,000 motor vehicle thefts in 2013
- New technology has only made it easier to steal vehicles. No longer do you need to “physically” break in. Can now gain access from farther ranges without permanently damaging the vehicle.
- Car manufacturers have not taken the time to develop and implement increased security against these types of attacks regardless of keyless entries/ignitions becoming a staple in new automobiles.

Objectives:
- Protect vehicles from theft
- Secure valuables located inside a vehicle
- Improve reliability and reputation of car model and manufacturer

Theory:
- To gain access to a car someone would need to create a device that can receive data from a car fob and then jam it so the car can't receive it. Since the keys never expire, they can use that one time key whenever they want.
- To simulate this we will use a 315MHz transmitter and receiver to capture the code and replay it to the car and gain entry.

Results:
- We are able to detect and interpret the signal emitted from the key fob when pressed.
- Mimicking this signal and relaying back to the vehicle when the manufacture’s key is not in proximity proves that the vehicle does have baseline security measures against direct copies.

Conclusions:
- Vehicles with keyless ignition in addition to keyless entry run additional risk of theft; many vehicles will continue to run even after the vehicle is driven outside proximity range of the key it was started with; this allows the thief to drive for however long until the car either is shut off or runs out of gas.
- After conducting experiments in attempts to access a vehicle that is locked without the correct manufactured key, it is clear that these security risks are real and need further attention and consideration.

Future Plans:
- Continue working on implementing solutions
- Construct working prototype implementing methods gathered during Phase One and research.
- Test and modify Security Prototype. Repeat this process until an effective protective measure has been fully developed.