Team 16: Cybersecurity Considerations for Safety Critical Systems

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Project Overview and Visual Description

- Educate individuals about car security
- Fully Functional Closed Loop System
- Analogous to a car
- C.O.T.S.
- Hardened against attacks





Project PERT Chart System **Hacking Tool Planning Complete** System System **Built and Built and** Hardened Research Central **Control Unit** Design **Protocol** Hardened Research **Formulation** Presentation Auxilliary **Analogous Car Hardware** of the design **Hacking Unit** design and Sensor System options for problem Design preperation **Feedback Unit** analogous car Design system GUI **Design of Create hardware** hardware cabinet and place cabinet for hardware into cabinet demonstration Week 20

Stakeholder Features and Attributes

			Stakeholders				
Feature	ID	Attribute/Metric	RR	Supervisor	Manufacturer	Clients	Consumers
Safety	A1	User Inputs	1	1	О	1	1
	A2	ECU Management	1	1	0	1	0
	А3	Safety Control Systems	2	2	1	2	O
Security	B1	ECU Management	X	X	0	X	0
	B2	Attack Bypass Measure	1	1	1	1	1
	В3	Attack Interrupt Measure	1	1	1	1	1
Affordability	C1	Built with Arduino	X	0	0	0	0
	C2	Built withBeagle Bone	X	О	0	О	О
COTS	D1	Built with Arduino	1	0	0	0	0
	D2	Built withBeagle Bone	1	О	0	О	0
	D3	OBDII Compatible	1	О	1	1	1
Maintainable	E1	OBDII Compatible	X	0	X	X	0
Manufacturability	F1	Easily Installed	Х	0	1	1	0
		Totals	9	6	5	8	4

Functional Architecture Analogous Car System <<Block>> <<Block>> **Coolant System** <<Block>> **Throttle** <<Block>> Brake **Emergency Thermal Limiter** Shutdown Steering CAN Bus <<Block>> <<Actor>> **Speed Limiter** <<Block>> Power In **Cruise Control Enable** To all <<Block>> <<Block>> **Speed Sensor** Cruise Control Setpoint CAN-I CAN-O <<Block>> **Engine Speed Control** <<Block>> <<Block>> **Brake Controller OBD-II Port CAN Link** <<Actor>> **Hacking Tool**