The S90 Go-kart
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State of the go-kart:

As of the start of the semester, the stock metal for the go-kart’s chassis had been measured, cut and welded. The suspension for the go-kart had be fabricated and installed on the go cart as well. The rear axle was attached to the go-kart with the disc brake, gear, and wheels installed. The front wheels of the go-kart were installed. The seat mounting brackets for both the bucket seat and Sean’s seat were fabricated and the bucket seat was installed. The linear actuator to adjust the seat’s position was installed and attached to the seat mounting plate. The engine was installed along with the torque converters and the gear box. The drive chain was installed around the gearbox gear and the gear on the rear axle. The steering wheel was mounted along with the potentiometer it relates to. The pedals were installed and the rack and pinion as well. The Gear motor which drove the rack and pinion was installed as was the gear motor for the brake and the brake itself.

figure 1: the go-kart before the semester started

Work done to the go-kart:
As of the start of the semester I traveled to Andover MA and loaded the go-kart onto a box truck and transported it to the Castleman Machine Shop where it will be stored while we complete the remainder of the work on the go-kart.

I have spent the majority of my time wiring the various electrical components of the go-kart. This includes measuring wire lengths, soldering connections when appropriate or using a coupling device, and routing cables efficiently while being out of the way.

As of right now, I have wired power cables for the seat linear actuator. Power cables for the steering gear motor have also been wired. The power for the headlights has been wired to a switch and subsequently to accessory on the key and to the battery. When the key is in the accessory or on position and the headlight switch is turned on, the lights will work. Wires have been run for attaching the gearbox linear actuator, the braking motor, the string potentiometer for steering, and the linear position encoder for braking. The servo for the throttle has also been wired. A wire for the alternator was wired and attached to the battery terminal on the key in order to recharge the battery. The engine’s remote killswitch was wired as was the killswitch that will be driven via the software.

One front panel was designed and subsequently wired by myself where the key and the headlight switch have been placed.

![Figure 2: The back side of the key housing and how it is wired](image-url)
Next week:

For next week I plan on wiring the LED indicator lights for the front dash panels. The killswitch will be rewired as per the design changes that were made recently. Wires will be wrapped in automotive conduits to protect the wires. The circuit boards containing the timers and PICs will be consolidated to a single board to prepare for stage one testing. The joystick will be wired and a molex connector will be used to disconnect the joystick from the go-kart. Wiring the potentiometers for the pedals will be completed next week as well.

Hours worked:

Over semester break: 70 hours
Since semester start: 40 hours