



## INFORMATION

# SPARKFUN AUTONOMOUS VEHICLE COMPETITION - 4.17.2010

### Competition Schedule:

8AM	Team admission
9AM	General public admission
9:30AM	1 <sup>st</sup> heat start time Raffle at end of 1 <sup>st</sup> heat
12PM	2 <sup>nd</sup> heat start time Raffle at end of 2 <sup>nd</sup> heat
2:30PM	3 <sup>rd</sup> heat start time Raffle at end of 3 <sup>rd</sup> heat Free-for-all race! (mass start)
4:30PM-ish	Awards
6PM-ish	After party @ Dark Horse

### SparkFun Building Tour Schedule:

Tours start in the Atrium of the southeast entrance and will begin at the following times:  
**10:30 AM, 11:30 AM, 12:30 PM, 1:30 PM, 2:30 PM, 3:30 PM.**

### Rules and Regulations:

1. Race start times are 9:30am, 12pm and 2:30pm.
2. The competitors will be grouped by land vehicles and air vehicles (ground goes first, air second).
3. The race is run against a clock. Best time out of 3 attempts will be kept.
4. Each entrant will start their run at the completion of the previous entrant's run. For that reason, it is suggested that entrants be prepared to start at the official start time (9:30, 12, 2:30). We will be bringing teams to the starting line two flights before their run. So if you are team 11, you will be expected at the starting line ('on deck') when team 9 is beginning their run. If your name is called and you're nowhere to be found, you lose your turn and we start the next team.
5. All vehicles must circumnavigate the SparkFun building.
6. Ground vehicles are only required to go around all four exterior walls of the building. No course will be marked. No environmental modifications allowed (competitors may not put down tape, IR beacons, or any other semi-permanent marks).
7. Non-ground vehicles must also go around all four exterior walls of the building. Weather permitting, balloons on long freaking strings will be launched from the four corners of the building. The balloons will serve as guides for the judges/competitors as to the location of the corners/walls of which the non ground vehicles must circumnavigate. Regardless of weather/wind, the vehicles must clear the four exterior walls/corners of the building (not the balloons), verification of clearing the vertical plane will be up to the four line judges.

8. All vehicles must cross the starting line to begin the race, go around each corner of the building and cross the start/finish line to finish.
9. Non-ground vehicles will be awarded extra merit for lower relative altitude, autonomous take-off and autonomous landing:
  - a. Autonomous take off is worth a 15 second reduction in time.
  - b. Autonomous landing within the indicated box is worth a 30 second reduction in time.
  - c. Autonomous landing outside if the indicated box is worth a 15 second reduction in time (cartwheels are encouraged).
10. Maintaining a height below the tops of the balloons is worth a 15 second reduction in time. If a vehicle fails to complete its run, the total number of successfully navigated turns and distance will become the team's score rather than the time. Completed distance takes precedence over time. Example: a ¾ completion in 2 minutes beats ½ completion in 1 minute. Ultimately, the best time for a full lap takes the cake.
11. All vehicles must be fully self-contained during the autonomous run (it's got to be thinking for itself, all on its own). No decision making ground stations are permitted.
12. Awards will be given for:
  - 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Place Aerial Category
  - 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> Ground Category
  - Crowd Pleaser
  - Engineer's Choice
  - Kill Switch
  - Water Hazard
  - Rookie Award
  - Best Dressed

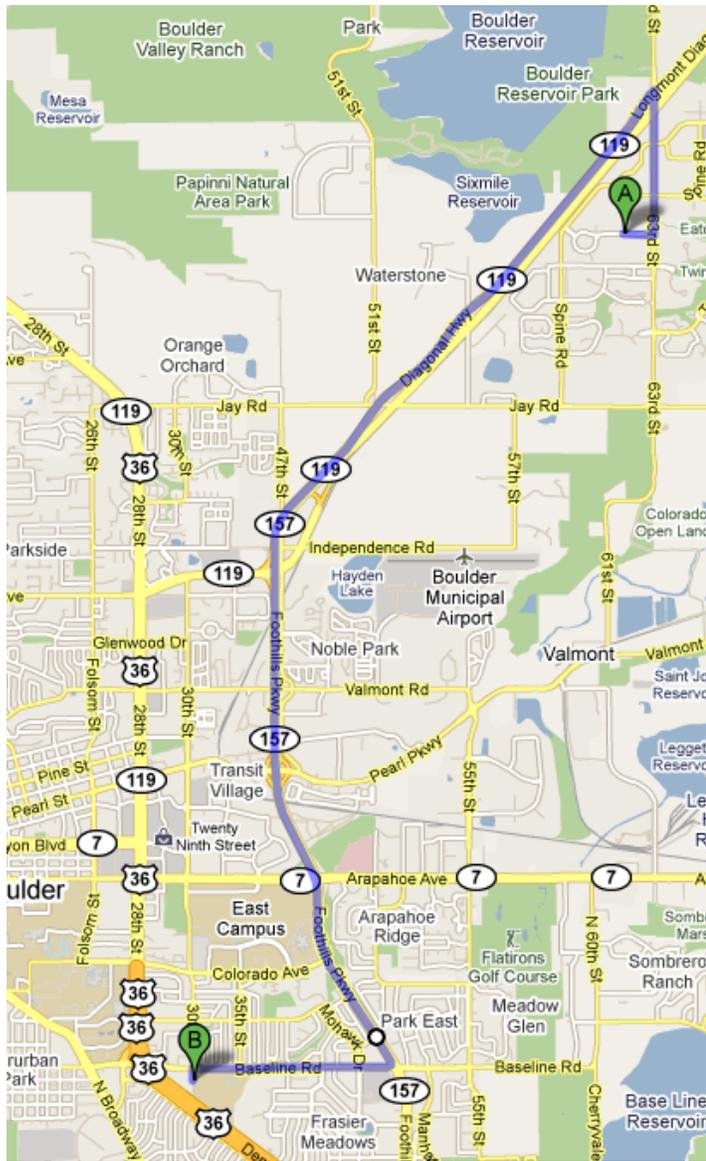
13. Definition: "around the building" - bot must go around the external four main walls of the SparkFun building. You pick the course and direction. Most teams will probably be on the black top (asphalt) but the choice is yours. We will not be moving (real) parked cars, dumpsters, or snow ramps, but we will block parking lot traffic.
14. Rules are subject to change on a whim - or if one of the SparkFun engineers (Chris Taylor) tries to cheat.
15. Autonomous means your bot/car/plane/heli has to drive itself. You press the start button, three seconds (or some amount of time) later the robot begins navigation under its own control. There can be no human interaction. The car cannot receive any commands over any medium from a human operator. It is allowed to transmit debug information and receive any other signals (GPS, proximity, etc).

### Keep an eye out...

Rumor has it that there is an autonomous vehicle race taking place here today. That means there are robotic cars/planes/rovers/whatevers zipping around. As such, look out for these vehicles coming your way. No one wants to see what happens when a rover that has taken someone 2 months to develop is about to cross the finish line but stops just short - after running into your leg. Try to keep off the course as much as you can!

It's a jungle out there - stay safe.

## Map from Sparkfun to The Dark Horse:



## After Party

After the competition, at approximately 6pm, you are cordially invited to join SparkFun staff at The Dark Horse – one of the local watering holes. This is an open invite, so bring whoever you want – though keep in mind it is a bar. The address is 2922 Baseline Road, Boulder, CO, 80303. Here is directions on how to get there from SparkFun:

1. Head east on Longbow Dr. toward 63rd St - 0.2 mi
2. Turn left at 63rd St - 0.8 mi
3. Turn left at CO-119/Diagonal Hwy/Longmont Diagonal Hwy - 3.1 mi
4. Continue onto CO-157 S/Foothills Pkwy - 3.0 mi
5. Turn right at Baseline Rd - 1.1 mi
6. Turn left at 30th St

Destination will be in the parking lot behind the McDonalds.

# Sparkfun Grounds Map:

