HIMALAYAN MAKERS GUILD
Self-Driving Car Project

THE PROBLEM – CAR ACCIDENTS

Car accidents harm people and damage property.

What are some ways to reduce car accidents, or the harm caused by them?

THE SOLUTION – SELF-DRIVING CARS

There are many possible solutions to the problem of car accidents, including reducing the use of cars (instead, travel by bike, or train); in-car safety technologies; and driving rules or regulations. We've chosen to explore self-driving cars as a possible way to reduce the harm caused by car accidents.

Self-driving cars use electronics and programming to drive more safely and efficiently. The cars could react more quickly than humans in emergencies, work together to be more energy and time efficient, and be more accessible to people with disabilities.

[1]

We will be building a self-driving car using a microcontroller, 2 motors, and a distance sensor.

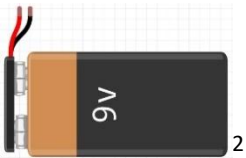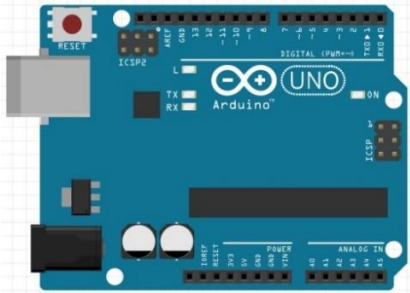[1] Car icon made by Smashicons from www.flaticon.com is licensed by CC 3.0 BY

NEEDS

The car must:

1. Stop and turn around, 10cm - 20cm before hitting an object 5cm or taller in height, then continue moving forward.
2. Run continuously for at least 2 minutes on a fully charged battery.

CONSTRAINTS

Some limitations for our design include:

- Time: The car must be finished in fewer than seven 1.5-hour activity sessions
- Materials:

1x		9V Battery
2x		Geared DC Motor
1x		Arduino UNO Microcontroller
1x		Ultrasonic Sensor
1x		H-Bridge IC

Basic electronic components (wires, resistors, capacitors, LEDs, etc.), breadboards, and basic building supplies (cardboard, glue, tape, etc.) will also be available for building the car.

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[2] Part Images from Fritzing