Safety on the Road

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Team 54

Hello, This project you are about to read/listen to is about DUI (driving under the influence). What we wanna show in this project are the health risks and dangers for people ingesting alcohol then driving to a certain destination. We also have a simulation of a drunk driver causing an accident and the chain reaction. We hope that you enjoy our hard-work and dedication to this project because it means a lot to us. Thank you!

Hypothesis:

Our hypothesis is that if we can make sure that pubs and bars take more precautions then that could reduce the number of accidents that occur. If we can continue making more technological advancements in the world of public health the DUI accident numbers could be reduced. Of course, as with some rules some people will not go along with such a thing. We hope to somehow convince people to do the right thing and be morally good. That will be a long journey though, it will require a lot of hard work. But it can potentially work.

DUI? What is that?

A DUI is a citation that a person receives when they drink a form of alcohol then want to drive home instead of getting a ride home from a friend or purchasing a Uber/Lyft. You've probably seen billboard signs on the side of the road saying not to drink and drive. An aggravated DUI is a more serious case, if they have consumed one or more drinks and have an alcohol level of .16 or above in the state of New Mexico then they drive being extremely intoxicated. You may also be charged with an aggravated DUI if you are not cooperative and refuse testing from a police officer. Police officers pull over people if they are swerving and such but, we will get into that later. They will then be taken to jail, if not as fortunate intoxicated drivers will crash and potentially cause harm to themselves or another person. In most cases, the drivers vehicle is also towed away.

How do we plan to fix this issue?

How we plan to fix this situation is by using our ideas. Yes they are still prototypes and rough sketches, but hopefully in the future we can test out our ideas with a group of people to see how it'll work in a real life situation. Along the way we would make improvements. We are very confident about our ideas. We feel we can really make a difference.

Why did we pick this topic?:

The reason we chose this topic is because we have seen people who are important to us lose loved ones by either being a drunk driver and or was in an accident that a drunk driver has caused. When the time came to choose a topic of what to do for this year's Supercomputing Challenge, we thought that it would be a good idea to study further in what DUI's are because we didn't know all of the details of what it was. Of course we knew the basic facts of how there are so many accidents due to drunk drivers, but we never knew what the laws were or if there is a motive for people to drink. Both with seeing grief and having curiosity this caused us to take a leap of faith and choose this topic.

The Numbers:

With drunk drivers causing accidents New Mexico has about 37,000 people die from some sort of drunk driving accident, which is roughly 28% of the population each year. In Farmington an article posted by the Farmington Daily Times back in 2018 saying for people to stay off of roads while intoxicated, New Mexico was one of the states that had the fourth-highest rate of drunk driving in the U.S with 5.74 deaths per 100,000 people. In recent studies the state of New Mexico's alcohol consumption has gone down in 2020. We do have a feeling that these numbers will go up after the COVID-19 pandemic is finally lifted, the bars and pubs will be opened and people will go hangout with their friends and family, and no doubt that will lead to DUI accidents. At that moment police on watch must be very vigilant and should possibly have more DUI checkpoints.

https://worldpopulationreview.com/states/alcohol-consumption-by-state/ New Mexico alcohol consumtion 2020
https://www.daily-times.com/story/news/crime/2018/12/24/new-mexico-has-one-highest-rates-drunk-driving-deaths-swi/2393323002Farmington Daily times

What are the health risks?:

Alcohol is a very unhealthy drink and can satisfy and give people a sort of non-conscious feeling they then pass out and wake up with a splitting headache. Since this drink can give people that feeling of not being completely there people tend to drink excessively during special events. The following lists are the short-term risks versus the long-terms.

Short-term Risks:

- Injuries such as automobile accidents,falls, drownings and burns.
- Violence such as murder,suicide,sexual assult and intimate partner violence (physical)
- Alcohol Poisoning, a medical emergency that results from high blood alcohol levels.
- Risky sexual behaviours, like unprotected sex or sex with multiple partners. Doing these acts can then result in unexpected pregnancy or receiving a sexually transmitted disease like HIV.
- Miscarrage and stillbirth or FASDs (fetal alcohol spectrum disorders) among pregnant women.

Long-term Risks:

- High blood pressure,heart disease,stroke,liver disease and digestive problems.
- Cancer of the breast,mouth,throat,liver and colon.
- Learning and memory problems, including dementia and poor school performance.
- Mental help problems, including depression and anxiety.
- Social problems,including lost productivity,family problems and unemployment
- Alcohol dependence or alcoholism.

All of these risks and health problems were recorded by the CDC (Center for Disease Control and Prevention)
https://www.cdc.gov/alcohol/fact-sheets/alcohol-use.htm

What causes people to drink?:

There are a lot of things that cause people to drink. People may just drink for parties and events .Or they are pressured into drinking (mostly in teens). But in different places around the world, most popular in the UK, some people drink to be sociable how they finally turn 21 and are allowed to drink at bars. In a more serious sense, alcoholics drink a lot due to the loss of a loved one or they have just been laid off. When a very traumatic thing happens people fall to alcohol as a coping mechanism to ease the pain or the mental health issues of depression and anxiety. But what these people fail to see when they drink these drinks is it's only making things worse. More or less it is only putting the situation off for a short amount of time like running away from real life. That is why people drink as an escape route.

https://www.sanctuarylodge.com/alcohol-addiction/why-do-people-turn-to-alcohol/

Our Device Ideas:

Here are some of our ideas we hope to put in action in the future:

1. Alcohol Wristband

https://lh3.googleusercontent.com/-E-WVnxgMTNg/Xo1-IBnr9oI/AAAAAAAAEwI/5jKSqL2ivEo_LD_4t2yjeBt2KPvkiLAGACK8BGAsYHg/s0/2020-04-08.jpg

This is a wristband that can scan the alcohol level in your blood. Our plan is that whenever a place serves alcohol would give these wristbands at the door it scans when a person puts it on. This wristband will be set to a certain limit based on the laws in different states. If that limit is reached it will send 3 little beeps as a warning to stop drinking. If the limit goes over it will make a very loud beep notifying people around including bartenders and staff that this person is drinking too much.

2. Ceiling Scanner

https://lh3.googleusercontent.com/-TIkapETUkkU/Xo1-JCjMBKI/AAAAAAAAEwQ/M6H2ZTwWFA0ef5akxUuucuhhBKNvdZCKwCK8BGAsYHg/s0/2020-04-08.jpg

Much like the wristband it scans alcohol levels in a person. Except instead of beeping and alarming people around them, it will turn a certain color. Say when a person walks up to the bar this scanner will scan while this person is ordering. If the scanner finds that the persons alcohol content it will send a notification to a staff member showing where the person is and saying to not serve them any more alcohol.

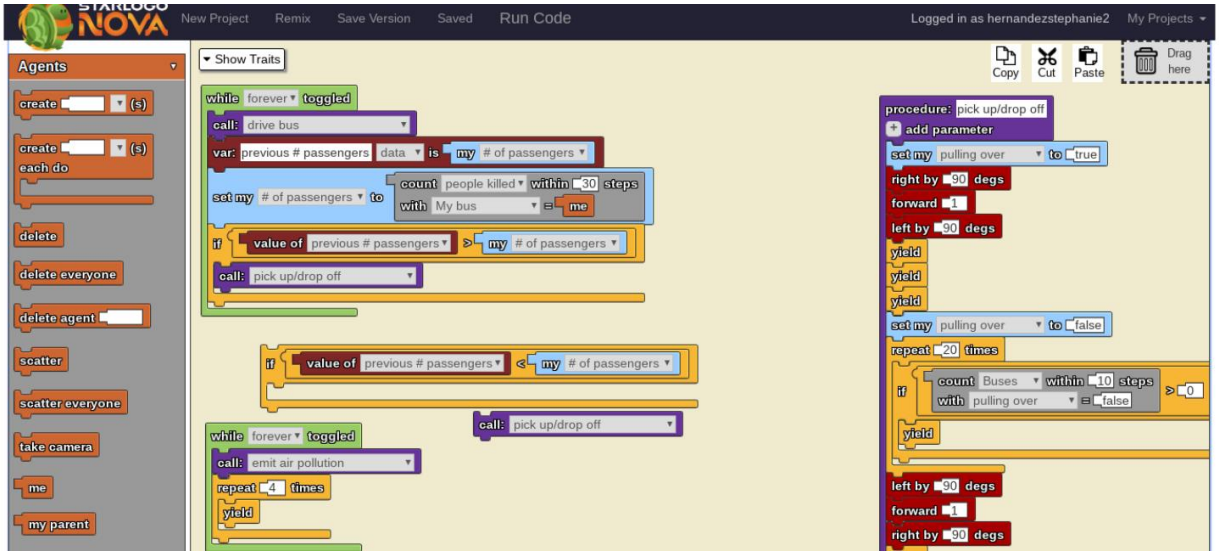
3. Spider Stopper

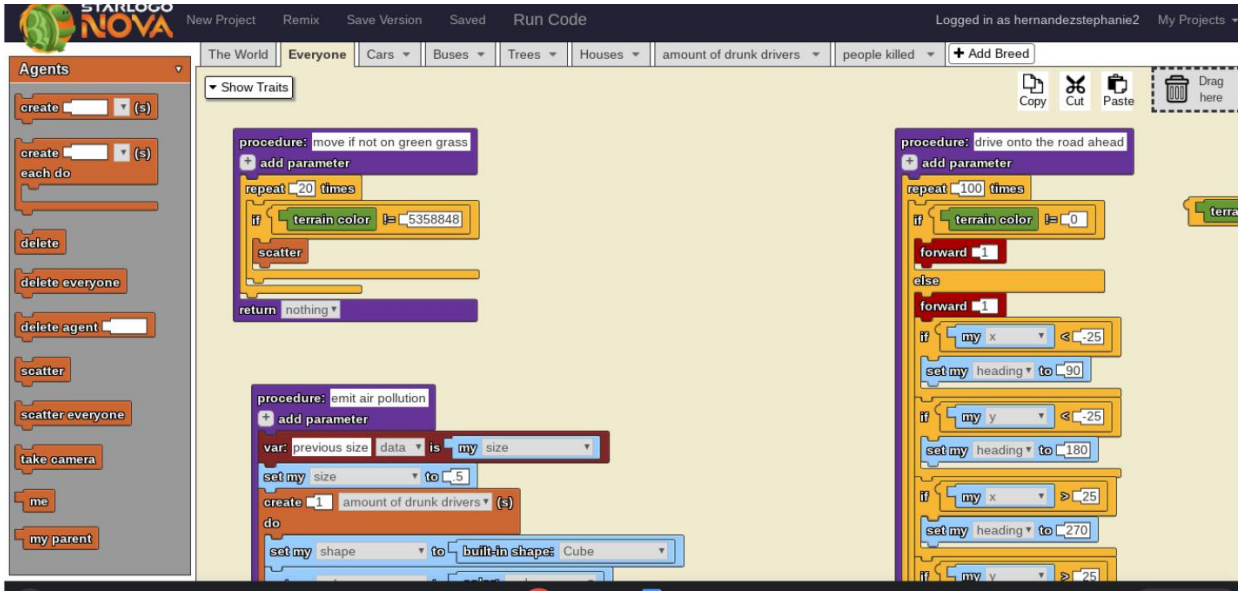
https://lh3.googleusercontent.com/-O__3udc2Xg0/Xo3X_VUjzTI/AAAAAAAAEwo/WQJk8npWPo4Oges39lP0vLpWUjSiBnYHACK8BGAsYHg/s0/2020-04-08.jpg

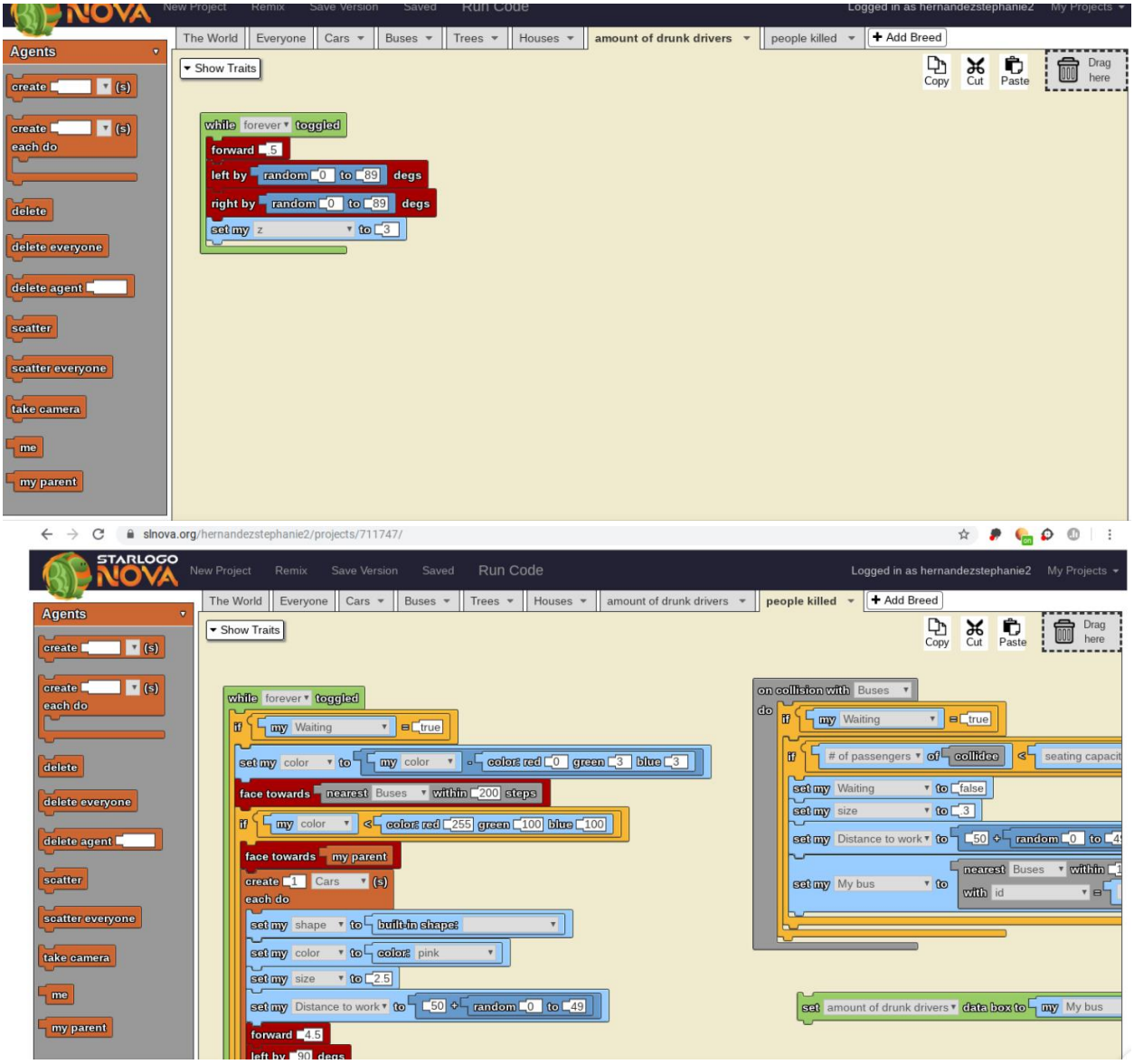
This device would go on the top of a car engine. There would be a breathalyzer inside the actual car. It again would be set to a certain limit based on different places. If the person's breath goes over the limit the “spider” will be activated and puts its legs in the engine shutting off the engine. The person can try to start the car but cannot. This shut off will send a Uber/Lyft towards the immobile car while notifying the police where the car is so it can be towed away.

Our Code:

Edit Interface
Create Widget
Clear All
Edit Camera
Reset Camera
Engine speed 5
setup
forever
people killed
Amount of Pollution
Time (seconds)
Pollution
People who arrived
amount of drunk drivers
Average amount of people killed


New Project
Remix
Save Version
Saved
Run Code
Logged in as hernandezstephanie2
My Projects
Agents
Show Traits
Copy
Cut
Paste
Drag here
while forever toggled
call: drive bus
var: previous # passengers data is my # of passengers
set my # of passengers to
count people killed within 30 steps
with My bus
if value of previous # passengers > my # of passengers
call: pick up/drop off
if value of previous # passengers < my # of passengers
call: pick up/drop off
while forever toggled
call: emit air pollution
repeat 4 times
yield
procedure: pick up/drop off
add parameter
set my pulling over to true
right by 90 degs
forward 1
left by 90 degs
yield
yield
yield
set my pulling over to false
repeat 20 times
if count Buses within 10 steps
with pulling over false
> 0
yield
left by 90 degs
forward 1
right by 90 degs


New Project
Remix
Save Version
Saved
Run Code
Logged in as hernandezstephanie2
My Projects
The World
Everyone
Cars
Buses
Trees
Houses
amount of drunk drivers
people killed
Add Breed
Agents
Show Traits
Copy
Cut
Paste
Drag here
procedure: move if not on green grass
add parameter
repeat 20 times
if terrain color = 5358848
scatter
return nothing
procedure: emit air pollution
add parameter
var: previous size data is my size
set my size to 5
create 1 amount of drunk drivers ($)
do
set my shape to built-in shape: Cube
procedure: drive onto the road ahead
add parameter
repeat 100 times
if terrain color = 0
forward 1
else
forward 1
if my x < -25
set my heading to 90
if my y < -25
set my heading to 180
if my x > 25
set my heading to 270
if my y > 25



Smaller solutions to help:

Smaller solutions that can help are having more rewards for designated drivers like a free soda whenever you go to a bar. Or maybe a cheap bracelet to show that you are driving home so you don't get alcohol. Smaller steps forward like this can be very beneficial.

Conclusion:

In conclusion, we hope to see our ideas change peoples lives for the greater good. Looking into this topic we now understand the health risks that alcohol causes not to the person body but to people around them. We are pleased with our work and we hope to win. Thank you!