Three Project Ideas

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Do Speed Limit Signs with Flashing Current Speed Indicators Deter Speeding More Than Conventional Speed Limit Signs?

Given that most American adults use cars to reach almost every local destination on a daily basis, there are many traffic collisions in the country every year. In 2017, the National Highway Traffic Safety Administration reported that there were "6,452,000 police-reported traffic crashes in which 37,133 people were killed and an estimated 2,746,000 people were injured." Given the extreme prevalence of traffic incidents in the country, a primary goal of infrastructure and police work in the United States should be focused on reducing this number. One tactic that has become more common in recent years is replacing conventional metal speed limit signs with ones that not only give the speed limit but also have a radar speedometer built into the sign that notifies drivers of their current rate of speed. While these signs certainly have the capability of catching a driver's attention, the question is whether or not they are actually more effective in reducing drivers' rate of speed. A company that produces these signs called RadarSign, claims in their tests of the signs, "typical speed reductions are 10-20%" and "overall compliance with the posted speed limit will go up by 30-60%". The company however offers no study or data results to back up these claims. Furthermore, the primary model of speedometer-enabled sign sold by Radar Sign (the TC-400) costs $3,000, which is quite expensive compared to a conventional metal speed limit sign. A solar panel is also likely to need to be installed as the sign comes with a battery pack that is only rated to last 5-7 days without replacement. Given the expense and complicated logistics required to install these signs throughout the United States, the question then becomes, does the increased cost of these signs justify the larger expense? In essence, are Radar Signs's claims replicable in a real world experiment or are police departments needlessly spending money? Data collection would be done by radar speedometers in areas after speed limit signs with built-in speedometers and after speed limit signs with no speedometer. These areas would be for the same type of zone (i.e. residential, commercial, or industrial), in the same zip code, and for areas with the same speed limit.

Plant with carbonated water

Can carbonated water act as a natural liquid fertilizer to promote faster plant growth? There are many types of fertilizer available on the market, some are natural and some are chemical based. Chemical based fertilizers might help plants grow faster, but might pose a risk to human health. Natural fertilizer is sometimes costly and the result might be slower. As an alternative carbonated water does not have any risk to human health and is accessible. Several studies have demonstrated that carbonated water can increase crop growth and other studies show carbonated water does not have a significant influence on plant growth. Based on the experiment we conducted on watering half of the radish plants with regular water and half of them with

carbonated water under the same environment, we noticed radish seeds watered with carbonated water geminated 10% faster than seeds watered with regular water. After 3 weeks, radish plants watered with carbonated water are 7% taller than radish plants with normal water. As a result, we can conclude that carbonated water can promote plant growth.

Gender Signaling and Reddit Performance

Does gender signaling impact response to comments/posts on Reddit?

Some online communities have reputations for misogyny or negative attitudes toward women in general. If we generate a series of posts related to a community's subject (gaming, sports, etc) and unrelated to gender, does the net number of upvotes change on average, if the post is generated by a neutral username (e.g. oblivion123) versus a username that signals an individual's gender (e.g. skyrimqueen123). It is fairly common in large online communities for the same article to be posted by multiple users in short succession, so we could feasibly have users create identical posts and randomize which account posts first.