Shots fired!

category: fun & motivation at work

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Motivation:

Working the whole day when there are so many deadlines and projects going on can be boring at some times. There are days where there is less interaction in the team and it's just not that motivating. Imagine having a gadget in your office that punishes the person which makes a mistake. In development it could be triggered by a failed commit of the code. So, everyone is working and all of a sudden, a Nerf gun searches for a specific employee to shoot because his code was not committed. It brings fun to the office and motivates the employees subconsciously to not make any mistakes. It could also be applied to other parts in business where for example you need to finish something in a specific timeframe or specific order and so on.

Approach: What system approach, technology, idea is being proposed? (Sabin)

The idea is to enable a Nerf gun to be controlled remotely and to add sensors to track and find targets, and trigger shots if certain events occur, e.g., code not compiling correctly or a morning alarm being set off.

For this project, the nerf gun should be converted to a fully motion-detecting automated gun.

Things that might be needed to complete the project:

1. A Nerf gun connected to the internet
2. Arduino
3. Servo motors (for the movement of nerd gun)
4. Webcam
5. Laptop
6. Third-party software (for the movement of nerd gun)

Technique

The nerf gun system would consist of, obviously, a nerf gun, mounted to servo motors for articulation. One or two cameras (two cameras would improve depth perception but require more processing power), paired with computer vision algorithms or predefined target locations can enable aiming and tracking, and a servo or an actuator on the trigger can enable firing. The whole system can be configured to triggered through a http request or something similar and matched to a program that would activate, for example, when somebody's code didn't compile.

Evaluation

Our approach will be evaluated by the capability of our device to aim targets without too much lag, to fire "bullets" when the given trigger is launched, the accuracy of the shots, e.g., a hit rate of 95% for pre-defined targets, and a hit rate of 80% for targets that require tracking. Interesting experiments will be testing the system on ourselves if we set a trigger like non compiling code. We can experience first-hand whether this enhances our productivity, if the targets are hit according to our pre-defined hit rate, or if living in fear of negative reinforcement will make our work less effective. If we work with pre-defined targets, we will opt for setting them up in a test room and count how often bullets reach their goal.