HashCode 2K21

<Bad Lockdown Habits>

<Ro-dolf>

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Problem Statement

As the pandemic hit us, we noticed one of the most massive lifestyle changes globally. People were restricted to their homes and thus adapted to that accordingly. Due to this they lost out and gave up on a lot of their daily routines
During lockdown, one of the major issues was people's deteriorating health due to bad lifestyle choices.

People started eating junk, and at the same time stopped exercising. Work from home further worsened this situation. Now, people doing WFH got used to a cycle of - wake up, eat, sit and work, eat, sleep. They gave more preference to their work over their health because of the extra workload and also fear of losing their jobs in such a market. To add to that, constantly staying at home made us lazier than usual which led to us resorting to quick ways out such as ordering food, essential items etc. Whatever little physical activity was involved in going to office and about, was now reduced to none. According to recent studies, it has been shown that physical inactivity further increases the risks of severe COVID-19 in patients.

People who went to gym before, also faced several issues such as lack of equipment at home and no physical trainer to constantly push them and motivate them. A physical trainer would track your progress and increase the intensity of the workouts accordingly. They do this via maintaining logs of the users improvements. The presence of someone who gives valid input greatly affected our interest, motivation, consistency and thus results of our workouts.

Solution Workflow

Step 1 → Step 2 → Step 3

Basic Laptop application GUI
- Working on frontend

Building Robot
- Building chassis.
- Making connections and coding it to do basic movements

Adding features to both our app and robot
- Coding in all the functionality mentioned in the next slide into our product

Integrating the app and robot to coordinate
- Making sure our functions run seamlessly and final testing of product

Solution Description

- Making a laptop application that coordinates with a personal assistant robot. We will maintain all logs of all essentials and maintain it on the cloud. We have two parts to our solution -
- ROBOT
  - Track and compare your workout to exercise videos you're following and produces an accurate estimation of how well the video was followed.
  - Data is stored in cloud and maintains daily, weekly and monthly logs. Based on this it will tell you your exercise and health status
  -It will also be a personal assistant for all things fitness related
  -The robot will provide consistent motivation and suggestions (like improving form,etc) throughout your entire exercise routine based on how well you are following the video.
- LAPTOP APPLICATION
  -GUI Application which interacts with the user whilst keeping log of exercise and water on the cloud
  -Water Tracker: tracks, notifies, and keeps log of how much water you drank via image processing.
  -Track your progress and results by taking before and after pictures comparing progress using image processing, which motivates you to continue. All logs maintained will be presented in a very aesthetically pleasing way that would motivate the user to continue.
  - Habit builder :We use the 21/90 day method to build a consistent and rigorous exercise regime to make a permanent lifestyle change
- We make use of Image processing, NLP, Machine Learning, AI, Robotics, Encryption of data and pushing it to the cloud,

Tech stack and Requirements

- SOFTWARE- Python, VS Code, Jupyter Notebook, OpenCV, numpy, pandas, pyserial, arduino IDE, etc.
- HARDWARE- Chassis, Arduino, speaker, wheels, motors, etc

Feasibility

- Target Audience- Anyone who wants to improve themselves physically, and improve their lifestyle. It is mainly targeted for work from home individuals or anyone who constantly uses their laptops. It is user friendly and the personal assistant robot is extremely interactive.
- Our application essentially mimics a personal gym trainer, and this way the user feels less lonely and is more likely to finish the exercise routine. So yes, they will be willing to adopt the solution
- App can be deployed on the App Store. The user will have to buy the robot to increase interactivity and to enhance the experience in general.
- In the future it is possible for the laptop to handle all the functionality without the robot, but that will drive down the interactivity thus the general effectiveness of our product.

References

- List of references for any data mentioned in this presentation.
- Physical inactivity is associated with a higher risk for severe COVID-19 outcomes - https://bjsm.bmj.com/content/55/19/1099
- 21/90 method - https://www.activeiron.com/blog/the-21-90-rule-make-life-better/#:~:text=The%2021%2F90%20rule%20states,a%20part%20of%20your%20lifestyle.