1. Introduction

The feeling of wellbeing is fundamental to one's overall health, enabling them to overcome obstacles and achieve the goals they set for themselves. According to research, a greater sense of wellbeing correlates with physical benefits, such as fewer instances of diseases and illnesses, and increased productivity and creativity both at work and at home.

Physical activity can strengthen your muscles and boost your stamina. Exercise delivers oxygen to your tissues and improves the efficiency of your cardiovascular system. And when your heart and lungs are healthy, work efficiency is improved. Even one session of moderate-to-vigorous physical activity can reduce anxiety, and short bouts of physical activity are beneficial. Additionally, physical activity promotes normal growth and development, improves overall health, and reduces the risk of various chronic diseases.

* 1. Fitness Technology

Every year, the fitness technology industry continues to grow at a rapid rate. We’ve seen a huge shift in health, fitness, and wellness in the last decade, so it’s no surprise that this industry is thriving. Fitness technology has a lot to offer: Applications that provide people with access to fitness, health, and wellness resources such as workouts, live training, metric trackers, and educational materials to help them keep on track. The apps offer clients the convenience of on-demand fitness programs, virtual training, and pre-recorded workout videos. These apps enable users to exercise anywhere and at any time.

2.0 Artificial Intelligence and Machine Learning in fitness

2.1 Artificial Intelligence

Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to natural intelligence displayed by animals including humans. Leading AI textbooks define the field as the study of "intelligent agents": any system that perceives its environment and takes actions that maximize its chance of achieving its goals. Some popular accounts use the term "artificial intelligence" to describe machines that mimic "cognitive" functions that humans associate with the human mind, such as "learning" and "problem solving", however, this definition is rejected by major AI researchers.

2.2 Machine Learning

Machine learning (ML) is the study of computer algorithms that can improve automatically through experience and by the use of data. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

2.3 Computer Vision

Computer vision is a branch of Artificial Intelligence which helps computers and other electronic systems to analyse visual inputs by interpreting it in the form of data and performing computations on the same to give desired output. If AI enables computers to think, CV enables them to see, observe and understand.

2.4 AI and ML in fitness

Artificial intelligence has become inextricably linked to health and fitness. As technologists claim, AI is improving everything, including engagement in fitness apps that will potentially increase revenue.

AI in the fitness industry can broadly be broken down into the following fundamental blocks:

1. Predict what exercises your users are able and want to do. This might be based on getting a very short profile from a user.
2. Create workouts out of sets of exercises while learning how your users respond and what results they get. For example, AI may figure underdeveloped muscles and leverage the overall ability of users to reshape their habits by applying necessary fitness data.
3. Adjust workouts based on available equipment, as your app users probably have less gear at home than in your gym.
4. Provide human pose estimation, which is a popular solution that AI has to offer. It is used to determine the position and orientation of the human body, its movements given an image containing a person.

References:

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Glossary:

1. AI: Artificial Intelligence
2. ML: Machine Learning