ABSTRACT

Mountainboards are the newly developed boards that are gaining recognition in the recent times. It was developed in the year 1970. In the recent time the board has been developed and designed in such a way that it can be ridden in all the terrain. In this I have designed the board for optimal design for crash resistance and does act like a cushion for jump load too. The materials used earlier was wood for the deck of the board. As wood is a natural resource we need to conserve it. I have made use of the two materials for the deck. That is alluminium and the ABS. Both have showed good qualities to the resistance of the crash load and the jump load. But compared to each other the alluminium is a better option for the deck material as this cheaper than ABS and has more flexibility and acts as a shock absorber.

Keywords----- Mountain board, Disc brake, Powersliding

I. INTRODUCTION

Mountainboarding, also known as Dirtboarding, Off-road Boarding, and All-Terrain Boarding (ATB), is a well-established if little-known action sport, derived from snowboarding. A mountainboard is made up of components including a deck, bindings to secure the rider to the deck, four wheels with pneumatic tires, and two steering mechanisms known as trucks. Mountainboarders, also known as riders, ride specifically designed boardercross tracks, slopestyle parks, grass hills, woodlands, gravel tracks, streets, skateparks, ski resorts, BMX courses and mountain bike trails. It is this ability to ride such a variety of terrain that makes mountainboarding different from other board sports.

Morton Hellig's 'Supercruiser Inc.' was the first company to manufacture and retail the 'All Terrain Dirtboard', patented in 1989. [citation needed] Mountainboarding (name coined by Jason Lee) began in the UK, the USA and Australia in 1992. Unknown to each other, riders from other boardsports started to design and build, and eventually manufacture boards that could be ridden off-road. This desire to expand the possible terrain that a boarder can ride created the sport of Mountainboarding.

Dave and Pete Tatham, Joe Inglis and Jim Aveline, whilst looking for an off-season alternative to surfing and snowboarding, began designing boards that could be ridden down hills. Inglis developed initial prototypes, and in 1992 noSno was started. Extensive research and development produced the noSno truck system which enabled the boards to be steered and remain stable at high speeds.[citation needed] NoSno boards utilised snowboard bindings and boots, with large tyres for rough ground, and the option for a hand-operated hydraulic disc brake.

In 1992, after having snowboarded at Heavenly Valley Resort in Northern California, friends Jason Lee, Patrick McConnell and Joel Lee went looking for an alternative for the summer season. Not finding anything suitable they co-founded MountainBoardSports (MBS) in 1993 to build boards that they could use to carve down hills. The original MBS boards, known as 'Frame Boards' had a small wooden deck metal posts to hold the rider's feet, a tubular metal frame connecting trucks which used springs to enable steering and thus create the carving sensation that the MBS co-founders were looking for. The first recorded mountainboarding act occurred in the summer of 1978, when local skateboarder Mike Motta residing in Medford Massachusetts navigated down a hill known as Seven Bumps in Malden Massachusetts on a bet, using a standard Franklin skateboard.

John Milne developed a three-wheeled version of a mountainboard in 1992 in his spare time during periods of very poor surf. It used a unique steering system to emulate surfing on land. It had 3 wheels and a skate-style deck with no bindings.
II. METHODOLOGY

Mountainboarding is a cross over between skateboarding and snowboarding, with elements of other extreme sports such as BMXing. Originally started as a way of snowboarding all year round it has developed into a fully-fledged sport of its own. Snowboarding can be expensive due to the price of travel to and from snow resorts. Mountainboarding can be done almost anywhere. Learning to mountainboard is very easy. Most people are up and running comfortably within their first hour mountainboarding. Instruction from a qualified instructor will help you get started safely and easily. We recommend you always wear appropriate personal protection equipment. A helmet, knee pads, elbow pads and wrist guards are recommended at all times.

The diagram below shows the key components of a mountainboard.

Mountainboarding is an extreme sport that is quickly gaining popularity all over the world. Many people compare mountainboarding to snowboarding without the snow, and instead of a flat board, mountainboards have big rubber wheels that carry the rider over dirt, grass and even rocks. Also unlike snowboarding, you are not actually strapped into the board. While your feet are held onto the board with bindings, the bindings do not clamp your foot in, so it’s a lot easier to come free from your mountainboard if you need to.

To really get a grip on the sport, a background in skateboarding, surfing or (especially) snowboarding helps. While some mountainboarders have handbrakes that will slow you down as you descend the mountain, most do not— you control your speed by powersliding. Powersliding is achieved by kicking your back foot out in front so that the board is perpendicular to the slope of the mountain. Since the wheels are so big and the rocks and dirt under you are loose, this does not cause you to come to a screeching halt but actually puts you into a controlled slide that slows you down considerably.

III. PRIOR APPROACH

Mountainboarding has developed beyond being a wacky sport idea into a legitimate board sport and MBS has become a highly successful company. There are now tens of thousands of MBS boards out there hitting grass slopes and dirt jumps.

As you would expect, mountainboarding was developed by snowboarders looking for a way to ride when in the summer months when there was no snow. It all started in 1993 when friends Patrick McConnell and Jason Lee developed the first three mountainboard prototypes in California. They moved to Colorado to start their business. In 1994 MBS manufactured 35 mountainboards.

Over the next few years the buzz grew and with clever marketing campaigns together with an increasing word of mouth sales grew steadily. 1998 saw MBS starting to refine its products and become more user friendly and suitable for newcomers.

In 1999 the company received investment and spent heavily on marketing and promotion to increase awareness of the brand and the sport as a whole. It paid off when the company sold more boards in the holiday season than in the entire year before.

2000 saw a lot of media exposure on TV, radio and print. 2001-2002 saw the first of many MBS Ramp shows going on tour. This time called the ‘Big Air Team’. 2003 was a big year. The tenth anniversary and the year many proprietary new products which are still known and used today were launched. These included the Matrix truck, F3 bindings and T1 tyres. A new tour, this time of US schools hit the road to demonstrate mountainboarding to the masses.

The last 5 years have seen mountainboarding take off all over the world. More big brands getting involved and the level of riding rapidly increasing. MBS continues to refine its products and support the growth of the industry. MBS riders continue to dominate competitions all over the world and our employees, riders and friends continue to help introduce the sport to new people year after year.

Origins:

Morton Hellig’s ‘Supercruiser Inc.’ was the first company to manufacture and retail the ‘All Terrain Dirtboard’, patented in 1989. Mountainboarding (name coined by Jason Lee) began in the UK, the USA and Australia in 1992. Unknown to each other, riders from other board sports started to design and build, and eventually manufacture boards that could be ridden off-road. This desire to expand the possible terrain that a boarder can ride created the sport of Mountainboarding.
IV. OUR APPROACH

In this here I have designed the mountain board in an optimal design to withstand both crash load and the jump load. The designs of the boards are given below.

Now using the solid works software the crash and jump load analysis is done and the results are as given below.

**ABS:**

The stress analysis of the abs mountain board is as given below. The red part represents the highest stress and the blue part represents the lowest.

**Alluminium:**

V. CONCLUSION

By observing both the results the we can say that both the materials have shown satisfactory result in the discussion. Alluminium has shown great result in the jump load analysis as it has some elastic properties when compared to the abs. As in ABS the crash test is satisfactory when compared to the jump load test. As ABS has shown greater resistance to the crash and deformation. When compared to both the materials the alluminium is more reliable as It has more desirable properties and the manufacturing cost of the alluminium is less when compared to the ABS plastics.

REFERENCES

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