How might we improve sport equipment with technology that helps improve your skills?

By: Michael E, Micah Q and Lachlan M
Lachlan: I chose this project because I think people need to get better at sport and also I love sport and that kind of stuff and to make a ball or a scoreboard with tech and to learn new things myself and how to code new things. Also we could get better at that sport as well if we do this project right we could sell them around the world. So that is why I am doing this project.

Michael: I chose this project because I love anything to do with technology. I had heard the Micah had wanted to do things with technology and basketballs so I thought let’s make it happen.

Micah: I chose this project because I wanted to help people and make them happy. I love educating people and I really wanted to be able to show people my passion of sport with footy and hockey. I love all sports. My favourite sports and the ones that I play are Footy, Hockey and Cricket. I like these sports because I have liked them since I was young and they are all ball sports. I really can’t wait to start going to each others houses and working deep into to the project.
Our ideas for what we are doing and what we decided to make

At the start of the unit Mr S asked us to make a list of 17 ideas to improve sport equipment. They are in order of what was possible in the time we had and the resources we had. Click here for our ideas.

After a long and hard conversation we decided to go with Putting motion sensors in a basketball hoop so when you score it will tally it up on an electric screen in the corner of the backboard. (make the glass strong enough to sustain the hit from a basketball.)
Making it

Our idea of putting motion sensors in the ring and the electric scoreboard weren’t going to work. They wouldn’t work because we had no idea where to buy them or make them and even if we did buy them they would’ve been too expensive. So we decided to draw up some ideas of what we could do instead. Here is our first plan.
After another week we only had 6 weeks left and we still hadn’t come up with a trigger idea. Michael and his dad discovered the bump switch which then became a major part in our project. They both drew up a plan of how it work and how we could use it.
Final Idea

Using the bump switch and the Makey Makey we came up with our final idea. Placing the bump switch underneath the ring.
How it works

Basicly what's happening over here is when the basketball goes through the hoop it will hit the bump switch which will send a message to the Makey Makey. The Makey Makey will then send commands to the scratch scoreboard on the computer which will tally up the score.
This is what the basketball ring originally looked like. That white thing is the trigger. The trigger then hits the other white thing which has the button. The button gets pushed then there is a cord that takes the points through to a computer connected to the scoreboard.
One of the main pieces of technology we used was the Makey Makey. Created by Jay Silver and Eric Rosenbaum, the Makey Makey is pretty much a small motherboard that when plugged into your computer can control it. This is how it works: The front of the Makey Makey is where you can put in alligator clips to do stuff on the computer. But when you do this you have to put one in the earth area otherwise your command won’t work. For example, if I plugged in an alligator clip in the space area on the Makey Makey and plugged in a alligator clip in the earth area, when the two ends of each alligator clip touch each other, it will tell the computer the Makey Makey is connected to to press the spacebar. It is just like pressing the spacebar on your computer but without touching it.
The Makey Makey 2

This is the back of the Makey Makey. You can still plug in alligator clips in the holes if you want to. This is where you can also insert wires into the Makey Makey. The same process on the previous slide happens with but with wires instead of alligator clips. For our project we used the back of the Makey Makey because we had to use wires instead of alligator clips.
Another piece of technology we used was a bump switch. It is practically a switch that can be wired into things. We used this piece of technology for our trigger because it was strong enough to hold the hit of a basketball and was also so small. When the big metal flap comes goes down it will press a button which when wire into Makey Makey will send messages into the computer.
The score board

Michael was in charge of making the scoreboard this was is how he went about it. To make the scoreboard I used scratch. To be honest I went to try and remix someone else’s timer but when I tried to change things to the way I wanted it just fell apart so I made my own. When starting to make it I had no idea what to do so I went and watched videos involving scratch. After learning I made it. One of the main things I used in making it was trial and error because when one thing didn’t work I had to find out why and fix it.
What the scoreboard looks like

Scoreboard

The code for the Scoreboard
What did we learn?

Lachlan: I learnt that when we started this project it was going to be really hard but now we have all worked together and now we have a really good basketball ring/ scoreboard that can do many things that we would never think we could do.

Michael: I learnt how to code on scratch and I also learnt how to work cooperatively. I also learnt how to wire and how control a Makey Makey. I also learnt to never stop trying because you never when you might succeed.

Micah: I learnt how to work with technology. I learnt how Mr. S teaches and how he responds to our thoughts. I also learnt how a basketball can go in a hoop in different ways. I have learnt to keep my voice down so not everything is my way.
What challenges did we face?

One of the main challenges we faced was time management because to be honest we didn’t manage our time good enough. We at the start we weren’t working as a team as much as we had hoped, but as time passed we did things together most of the time. Another one of our problems was that we couldn’t meet up and work on the holidays this meant that we couldn’t get much work done. The biggest problem of all was that we didn’t know what we were doing by week 2 of Term 4 which meant 7 weeks till the expo. This deadline made us work hard. Some of us became stressed with the work load but we handled it together. One time our group split up and we all did separate things but then Michael said ‘Hey we all came up with this idea and we can’t do this project by our selves so let’s do it together.’ This made all the members come back together and finish the project. The Trigger broke on the basketball ring and this made it a little harder for us to do our work. We had to suck it up. We didn’t have much time so we couldn’t do much with the model. We had other ideas but we couldn’t use them because we didn’t have enough time. We were partly disappointed but we had to deal with it.
Lachlan: The impact that I would love to get is worldwide because if we work really really hard on this I think anything is possible but another impact that I would love to get is and I think the other members might want as well is wider community and that would be awesome as well but this could be sold in stores.

Micah: I think we will be able to a nation impact possible the world. To get this we will have to have research and take our time. We will have to find the correct way to create hockey sticks and footballs. We first need to show our new ideas and new styles. It may be hard but we will try.

Michael: I think the impact we will get is a community wide one. I think this because not everyone in the entire world and nation can see what we have done so the community would be a more suitable impact for us.
Special thanks to Mr S For helping us achieve this.
Thanks for watching !!!!!!
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