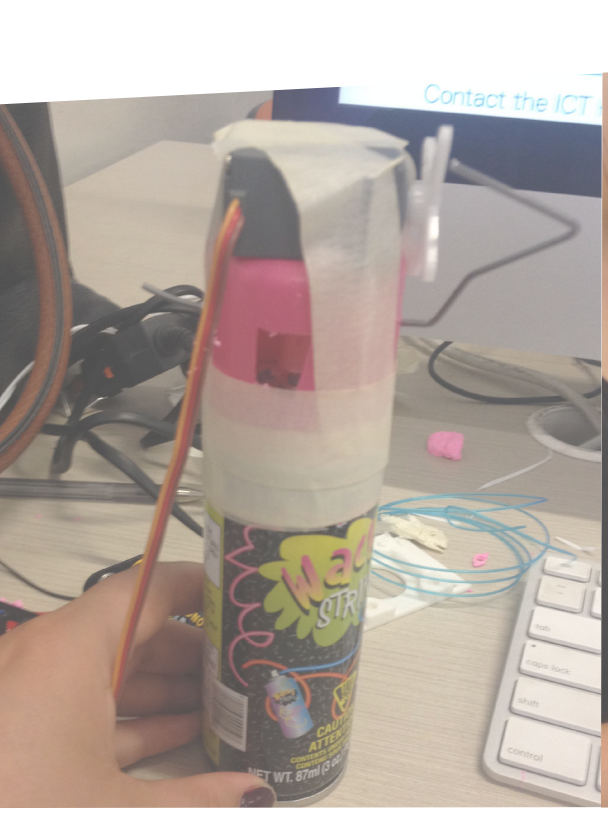
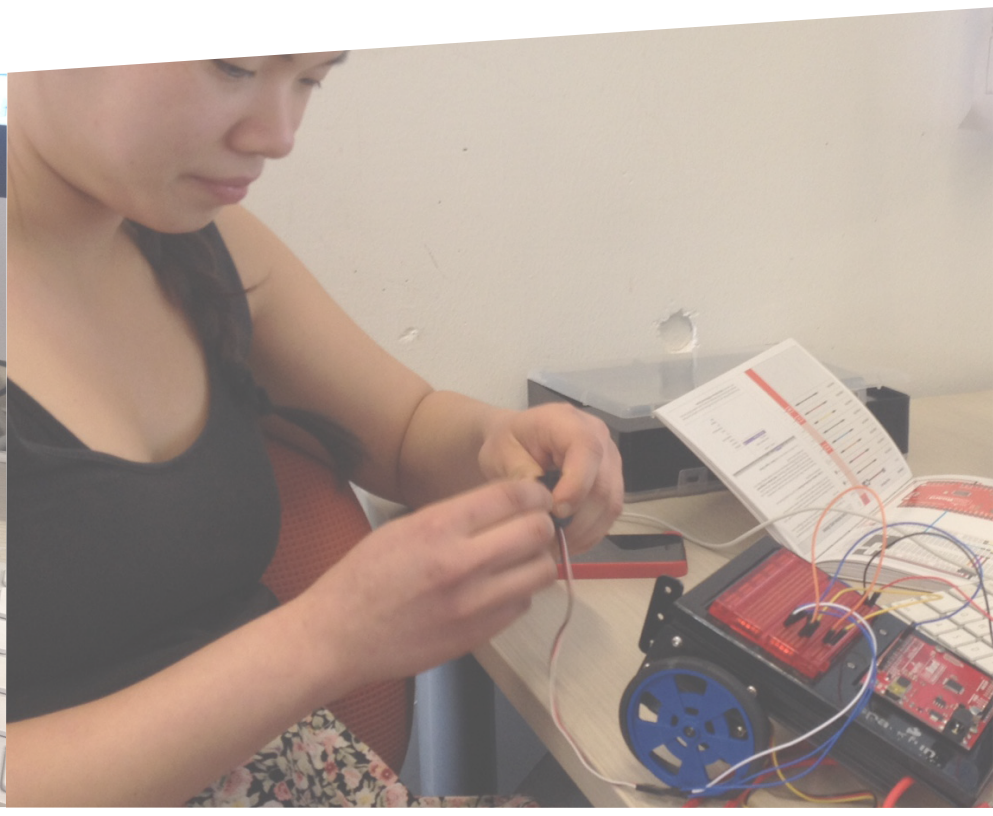
Team Tam

Heart rate monitor

Team tam has been busy in the last few weeks. We only just recieved the motors we ordered two weeks ago. Prior to that we spent our time working on our heart rate monitor turning the stepper motor in time with our heart beat. The stepper motor is then conneected to a wire which pushes down on the head of the spray can. We experimented with silly string so we didn't create mess with spray paint. This was an effective way to set up the heart rate and test to see if the wire was able to push down on the nozzle. A problem we faced with this protoype was getting the lowest point of the turn at the point in which the paint will be sprayed. The nozzle was very stiff and the motor wasn't that strong so it wasn't really working. The position in which we stepper motor sat on the top of the spray can was also hard to determine as it had to align with our wire. We ended up not spending to mcuh time getting the measurments correct becasue the spray can we used in our final prototype is a different size.





Motors

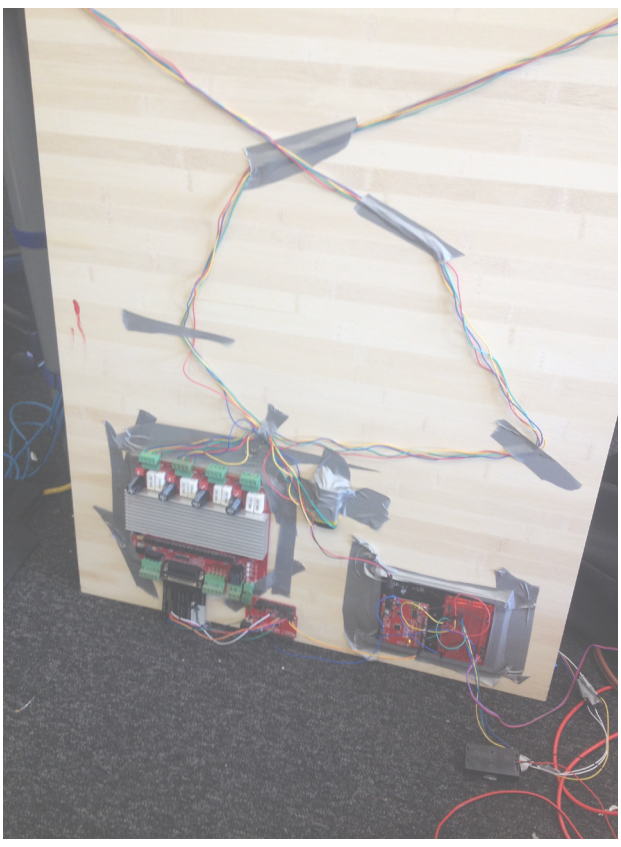
Once our motors arrived we 3D printed a mount and pully holder for the two stepper motors. The mount was a small box which the motors sit in and the pully holer slides onto the motors and it is what the string will wrap around when it is moving up and down. Our driver we ordered for the motors was not big enough but luckyily rob was able to lend us one to use which we were able to mount 2 stepper motors on.

Building the board

Once we had 3D printed our motor holders we hot glued these to a 60x100cm bamboo board. We then glued two clips onto the board which we can clib white pieces of paper onto it for the paint to be sprayed onto. Looking back we sholdn't have gotten bamboo as it is very flimsy and it could break easily. We should have gotten a more sturdy wood. The hot glue we used to stick the motor holders in the top corners fell off because the motores got so hot. If the wood were to be stronger we would have been able to screw this in. We ened up duct taping these holders in and if that works then we will paint over the duct tape so it is less obvious. For now our main priority to getting everything workong rather than the asthetics of it.

Putting it all together

We have attached all the boards and batteries etc ontothe back of the bamboo. We used duct tape to hold this for now. We will ocme up with a better and tidier way of doing this for grad show however for prototype presentaiton coming up this works fine. Once this was all put together and the spray can was hanging off the board we were able to start adjusting the equation for the stepper motors to move in the correct line. A problem we faced doing this was our fishing line we originally were using was not strong enough so we went and bought a ball of string. This works much better and is visiable so it is easier to work with.



Next step

We are still in the progress of adjusting the stepper motor. Every time we change the equation it doesnt change anything. We also don't have long enough wires to have the heart rate going at the same time as the hanging can moves so we havent been able to test if the paint is sprayed properly. This is our goal for Sunday night and Monday morning before it is due in.

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