Design: The Playable Character- Introduction

This will be the avatar that the user will be controlling. It has already been discussed that it will be a robot. This doesn't answer much, as a robot can cover any sort of automation. This can range from a disembodied hand on wheels (a robotic hand) all the way to being identical to a human. Of course before I make the statement that there are many different design choices, I would like to quickly set up some parameters- first this is intended for a younger age group- therefore robots that can induce fear (e.g. the red-eyed skeletal robots from the Terminator movies are a no-go). I would also like there to be a balance of the presence of the different sciences in the game, therefore I would want to considered how much internal mechanics of the robot I'd actually want to show (as I don't want to promote robotics outside of physics).

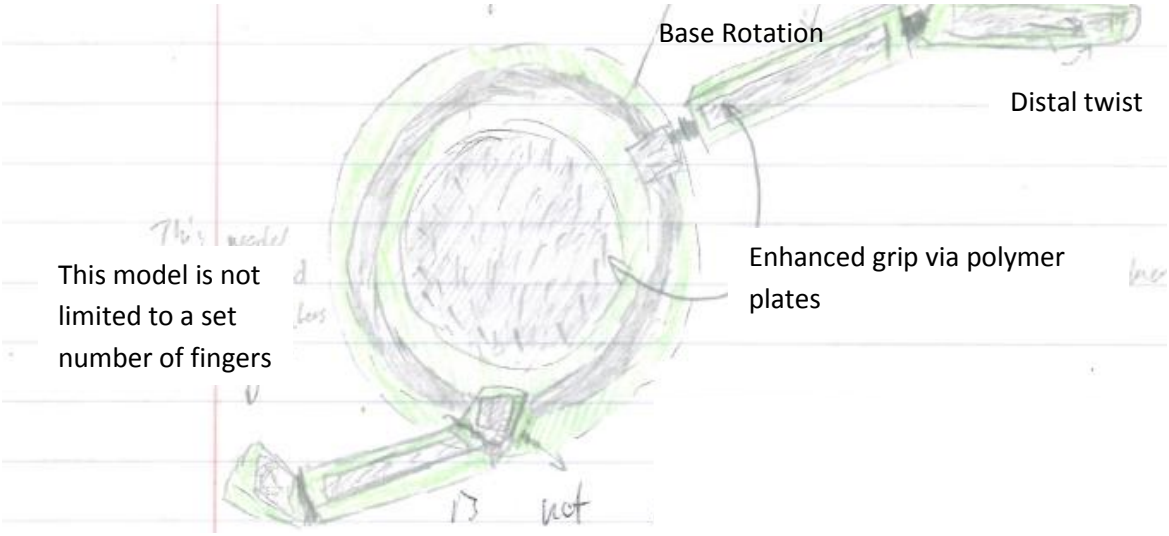
A model I'd like to use just to show what I believe is a good, child friendly robot- Marvin, the robot from The Hitchhiker's Guide to the Galaxy:

As you can see, rather than looking mechanical, Marvin sports a smooth white outer shell with black joints. This give Marvin a sci-fi, but overall realistic look.

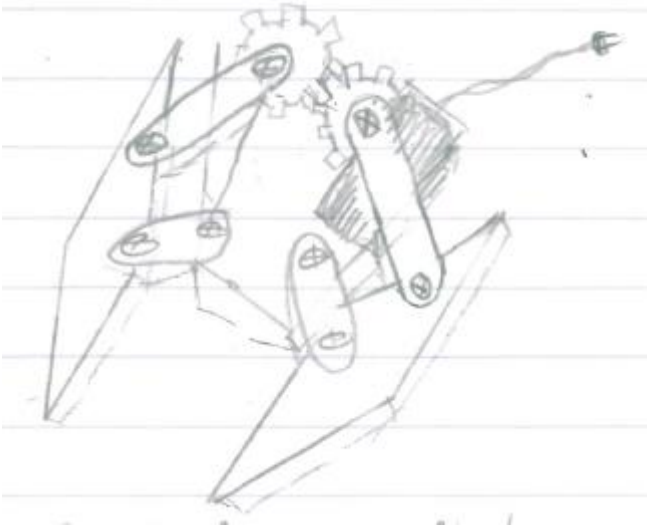
Appearance wise, this robot is mostly humanoid, save for the bulkier design and its head. This robot has the full functions of a human, save the ability to jump. This means that he would work in three out of four of all the possible situations.

Talking about the requirements, humanoid or not, it must be able to move (either with wheels or legs (I won't have a robot hovering around)), have hand/s and be able to jump.

On that vein I decided to do some research on hand designs:



This is a functional robot hand. This is not copied from fiction; this is a real working concept. Due to freedom of rotation between the finger joints themselves. This hand (it would have more fingers). Of course, this attention to detail may be a bit extreme for the given situation. Taking it back a step-

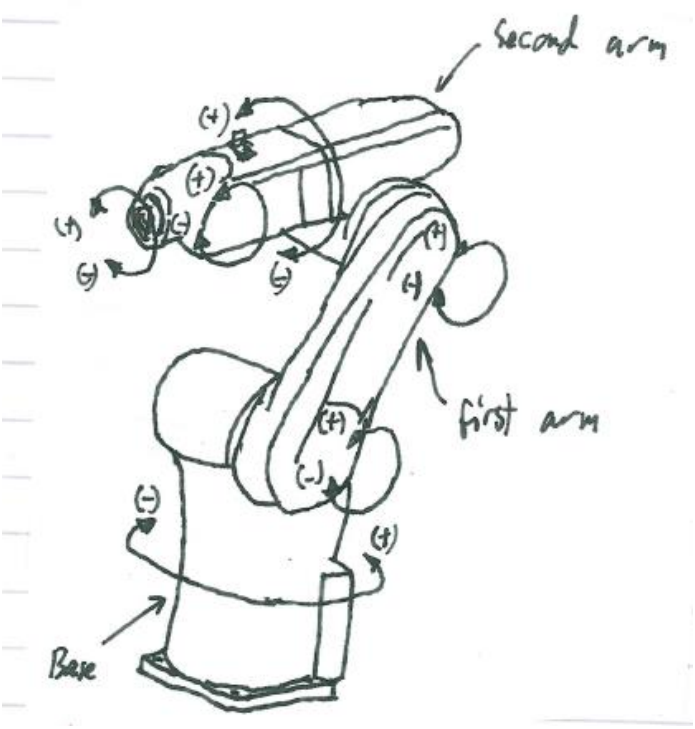


This is a concept of a simple robotic claw, it is powered by a single battery pack and can be mounted on any design of an arm. Now that both spectrums of hand design have been explored, I believe that a simple prong/claw hand would fit a more “robotic” theme than a fully functioning hand made from forged metal. Not only does this avoid any scary robotic claws, it’s a friendly reminder that this is indeed a robot.

Moving on to the arm(s), when looking around, I feel like robotic arms can be broken up into three different types:

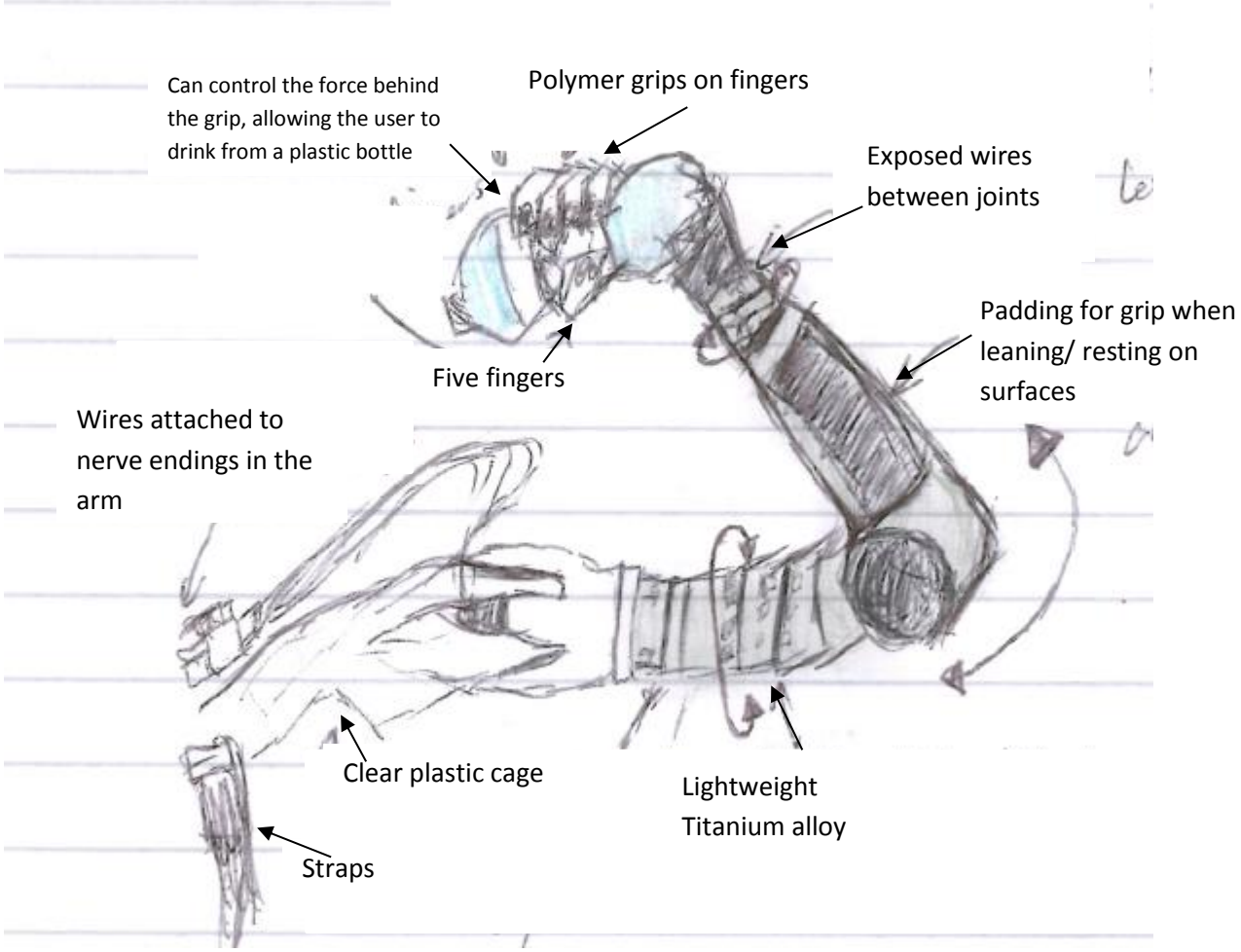
1) Industrial
2) (robotic) Prosthetic
3) Futuristic

Firstly, there is industrial. More of an arm in the practical sense than in looks. As these are designed for machines to do jobs in factories- they have a practical design rather than a sleek design that would mimic a human.



While it definitely has a robot feel to it, firstly, they're all really big and bulky, unlike other robots in non-combat games. I believe that I should go with a more streamlined approach.

That brings us to the second type of robotic arm; prosthetic. Unlike industrial, design is a massive part of these arms, as they're used by humans to replace missing limbs. This means that not only are they lightweight, they have the same motor functions as a human arm:

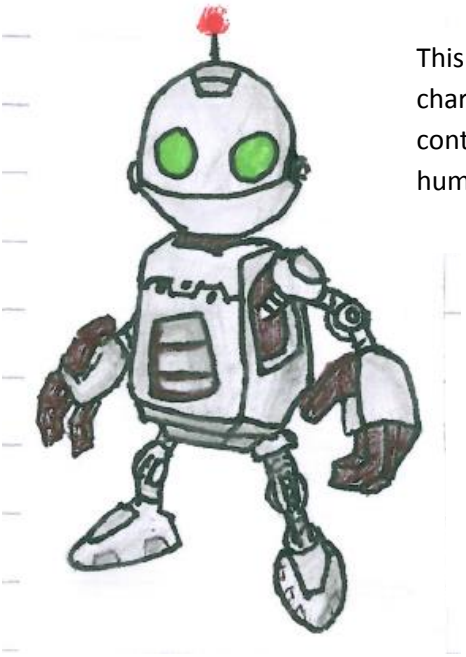


I'm not going to sugar-coat this; this arms it's ugly. Due to the limits in current robotics, we have to give up some aspects of style to get results. Covering things in artificial skin can also trigger pediophobia (fear of dolls) or creep people out (the effects of the "uncanny valley" will be discussed later).

Finally, there is the futuristic arm. These arms not only look more visually appealing than the prosthetic arms, but would also have the potential to outperform a normal human arm. As these arms look closely to either a human arm or a human arm without skin, I will not attempt to draw one myself and just include a normal image:

Looking at many examples of robots in games, those that actually have arms actually follow more of an industrial/prosthetic design, usually sporting what is essentially two pipes connected by an elbow joint:

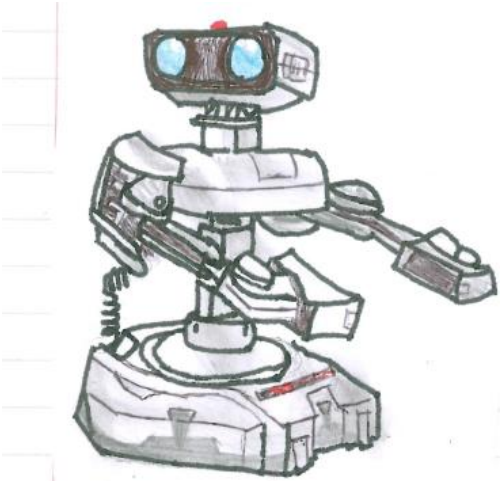
this seems like a wise choice, as we are not trying to drown the user in detail. It also adds an aspect of robot rather than a metal human as these arms are generally much smaller than human arms. A good example of this is Clank from the Richet and Clank game series.



This small humanoid robot is one of two playable characters in the game. To avoid wildly different controls and gameplay, it closely resembles a human.

Clank is a bipedal robot- he moves around on two legs like a human. While a robot can have any number of legs, I will avoid any more than two (because entomophobia [the fear of insects] is mostly sparked by their inhuman attributes, like many legs).

The other option is to give it wheels. This could vary from actual wheels (like ROB the Robot from ROB Racers) to caterpillar treads (think big tanks). Either option would work due to the cartoon ability for wheels to us suspension to spring themselves upwards to mimic the action of jumping.



As you can see, ROB only keeps a few resemblances to a human. His arms and eyes mimic that of a human's, but not to a great extent (as you see his arms do not end in hands, nor does he have clearly defined elbows). You could argue that his 'spine' in the middle section could also be human, allowing you the say the statement that ROB is humanoid from the 'waist' up.

This is evidence for the idea that it is completely fine to lean away from human elements when designing a robot. ROB was designed for a child's game. His lack of hands, torso or lower body doesn't seem to make him scary or inappropriate for his target audience. It is interesting to point out that his eyes are actually wide-lens cameras. It was a careful design choice that he had two cameras places in such a way that they resemble human eyes (in a cartoon fashion). This leads me to believe that when designing a robot, it is important for them to have a face.

With the separate aspects of the playable character considered, it is time to come up with a plan of how it will be designed:

- A head that will have some human aspects (mostly likely just eyes, I seen no reason for a robot to have a mouth).
- Simple hands that lack detail and small, pipe-like arms.
- Legs that will probably match the arms, they will have simple feet (not resembling a human at all).
- The body will probably be a geometric shape, I'll add detail to that to make it look for mechanical later, but it'll be more like a completing asset rather than a defining part of the character- something just to tie it all together.