



# Pipebot

Pipebots Purpose is very simple, to explore, research and inspect pipes that range from 500mm to 700mm. Pipebot is fitted with a camera in the nose of its shell, and the protective cover is shaped so that it provides a fish eye effect so the camera can see all around the pipe. Pipebot also has 3 pneumatic pistons plugged in one end to provide pressure on the 6 wheels so that there is enough traction, pressure and flexibility so that pipebot can inspect, explore and research a wide variety of pipes. Pipebot could be used in a lot of different applications, including: Aiding in rescue missions, inspecting pipelines that could be damaged, researching holes drilled by scientists. When pipebot is used on a rescue mission, such as aiding in the rescue of trapped miners, it would be sent down a hole that would be drilled by the rescue team and would send back video and audio to the team on the surface, to communicate with the trapped miners and provide the surface team with vital information only known to the miners. Pipebot would be very useful when used to inspect pipes, as its flexible drivetrain would allow it to maneuver around shallow corners and could show if the pipe has a leak or if a new pipe is needed. If

needed Pipebot could be fitted with sensors to research areas for scientists.

From the beginning we knew that we wanted a robot that travelled down pipes, and seeing incidents in the media about the Chilean miners where something like this could be very useful, and the original sketches didn't vary much from the final product, we knew that we wanted 6 wheels equidistance from each other and we knew we wanted the wheels to be flexible so that pipebot could fit in a wide variety of pipes. The thing that changed most about pipebot when going from sketches to the computer was the camera, originally the camera was going to tilt and pan, but after doing further research it was decided that there would just be a fish eye lens as pipebot could not afford to be putting power into extra motors.

When constructing pipebot in Autodesk Inventor, I found that the sheet metal area was very useful and was used a lot when I was making some of the components for Pipebot; I also found Inventor Studio was very helpful for rendering the pictures of the final design and the for pictures to show the progress of Pipebot. Although there was a few problems when construction pipebot in Autodesk Inventor, it was not that hard to fix them as the software's help system was very helpful and there are plenty of tutorials online to help.