Kids Crawling Companion final year project

Ultrasonic testing.

First thing I tested out on the Pi was blink so I would have a baseline and a small understanding of how the GPIO pins worked.

For the GPIO pins I am using the wiringPi library which was created especially for the raspberry Pi.

When I made my project proposal, I was thinking about using python for my ultrasonic and motors. I have since changed my mind and instead will be using C. I struggled to find some ultrasonic examples that use c as nearly everything I came across was in Python. I found a script online that uses C. Which sets up the ultrasonic to take a reading and display it on the screen once.

I have modified this code so that it continuously takes a read from the sensor every 500 ms and displays it. From this I was able to use it to control some LED’s which I am using in place of motors. When an obstacle is detected within 30cm it turns the LEDs on this is to simulate motors being switched on and off.

Now I only have one sensor and am waiting to get more. Once I have three, I will be able to test out the base of my obstacle avoidances.

I wont be able to have the three sensors trying to take readings at the same time as they may interfere with each other. I plan for sensor 1 send out and pulse wait 500ms for a response if it detects and obstacle it will turn on the motors if not it will sleep. Sensor 2 will then repeat and the same for sensor 3. This should allow for only one sensor to be getting a reading a once. As the process isn’t massively time critical 1.5 seconds each sensor will be asleep for should cause too many issues.

While I am waiting to get more sensors and a motor chassis, I will install OpenCV and see can I run some simple movement detection in C++.