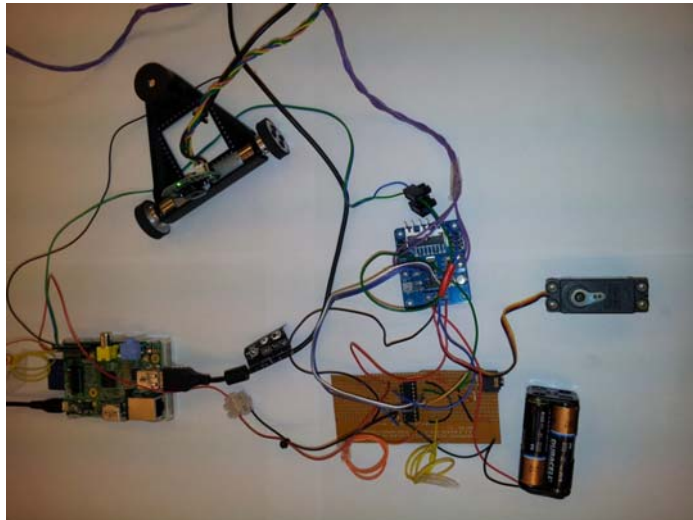


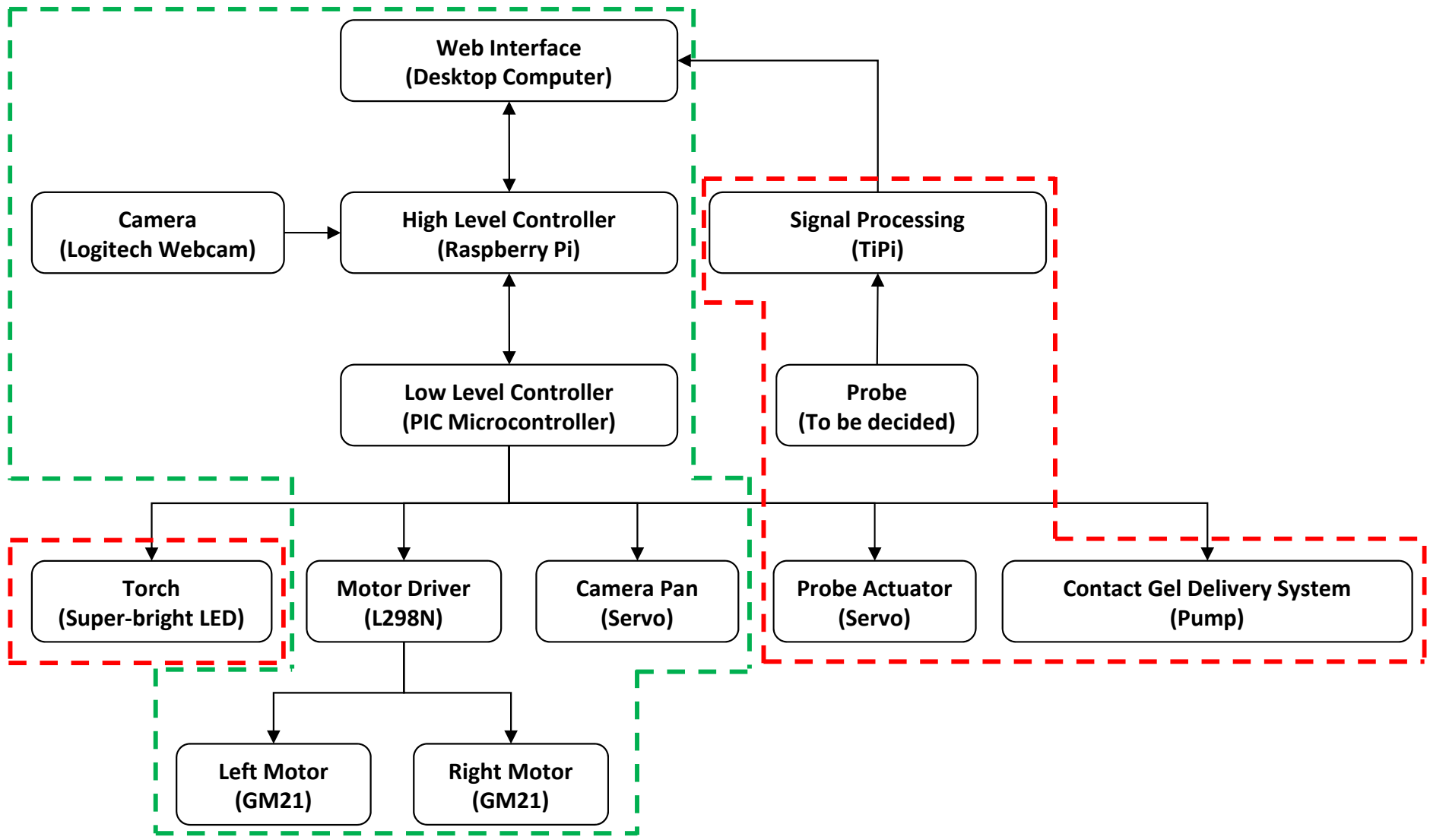
Raspberry Pi Powered Structural Inspection Robot

www.jonathanjamieson.com

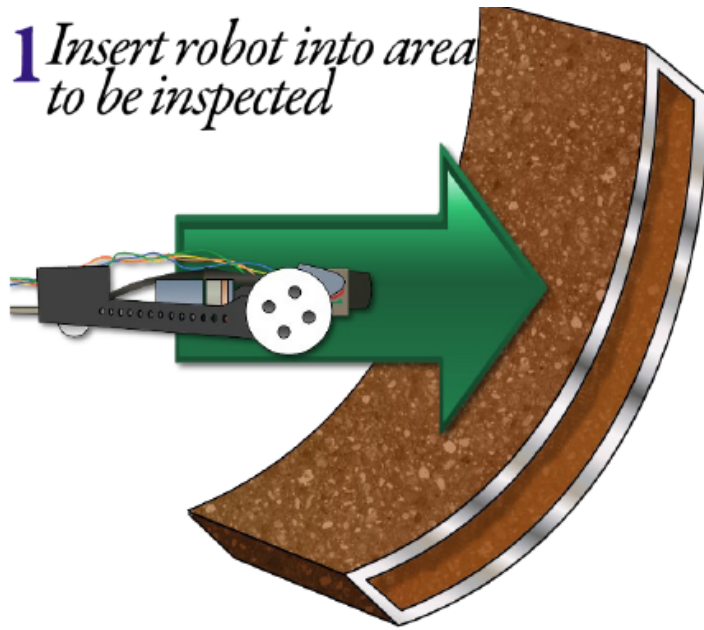






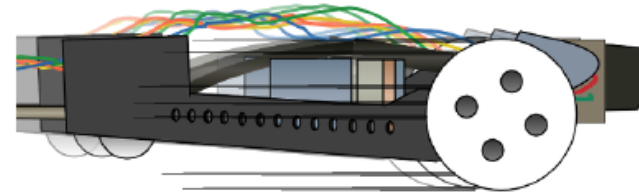


1 *Insert robot into area to be inspected*

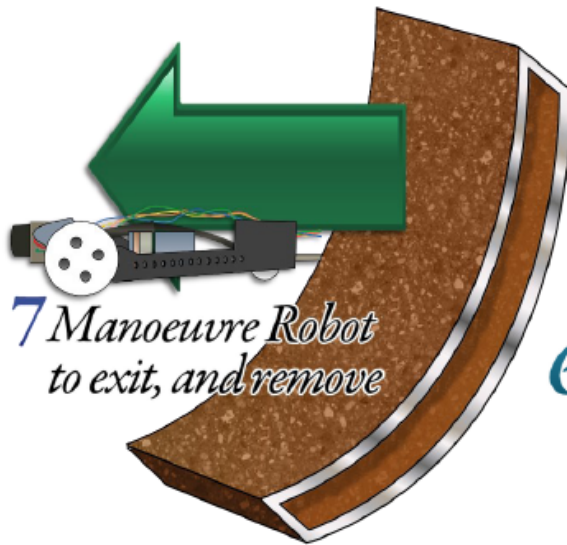


2 *Log onto the web interface*

3 *Manoeuvre Robot to required location*

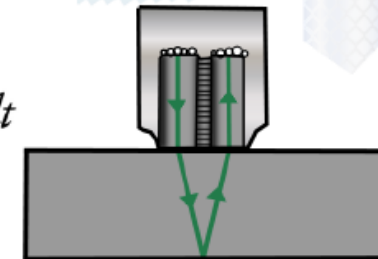
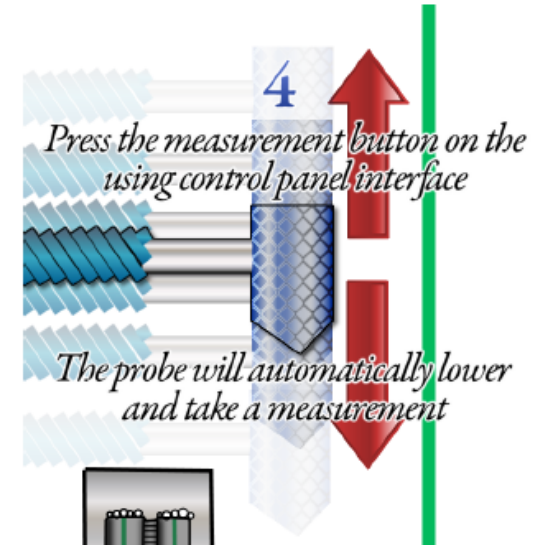


The Inspection Process



7 *Manoeuvre Robot to exit, and remove*

6 *Matlab processes the data, saves a copy to storage and displays the result on the web interface*



5 *The probe takes a measurement and sends it back to Matlab*

Key software used

On the Pi

WebIOPi (Robot interface)

Vsftpd (FTP server)

Apache (Hosting HTML)

MJPEGStreamer (Webcam streaming)

Off the Pi

Win32DiskImager (SD card backup)

FileZilla (FTP)

Putty (SSH)

The Robot Interface

The screenshot displays a web browser window titled "Strathclyde Inspection Robot - Mozilla Firefox" with the address bar showing "http://182.188.3.254:8081/webapi/". The browser's bookmark bar includes items like "Headlines", "Email", "Useful", "iGoogle", "PiD", "Group Project", "Facebook", "J's Raspberry Pi", "HPI L6", "RSS Feeds", "Cycling Routes", "To be revisited", "Uit", "Bathcraft", "Bumper Car", and "Unicycle Drawingd - U...".

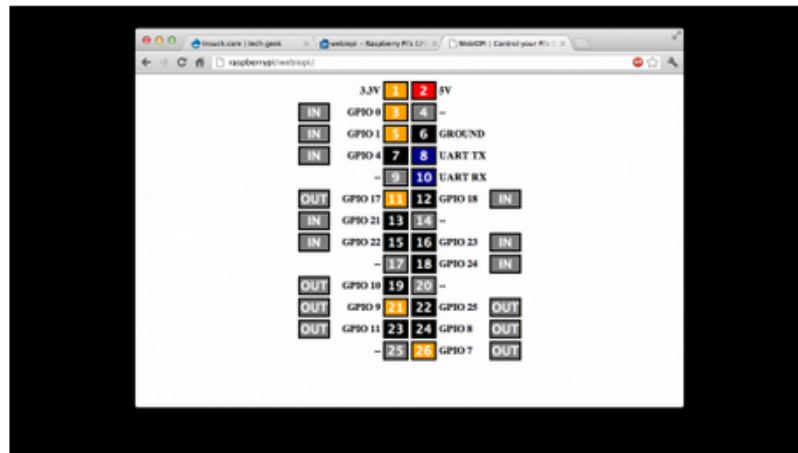
The main content area is titled "Strathclyde Inspection Robot Web Interface" and features several control elements:

- Control Buttons:** A set of buttons for movement: "Forward" (pink), "Left" (blue), "Stop" (red), "Right" (yellow), and "Backward" (green).
- Visual Inspection:** A large camera feed showing a close-up of a textured, grey surface.
- Probe Data:** A line graph showing probe data over time. The y-axis ranges from -0.1 to 0.15, and the x-axis ranges from 0 to 5000. The data shows a sharp initial spike followed by a steady line at 0. Below the graph, the text "Thickness: 0.011235 mm" is displayed.
- Photo and Probe Buttons:** Two buttons labeled "Photo" and "Probe" are positioned above a row of five small thumbnail images showing different views of the robot's sensors and the surface being inspected.



WebIOPi

Raspberry Pi Internet of Things framework



Key Features

- REST API over HTTP and CoAP
- Server written in Python with no dependency
- Supports GPIO, UART, SPI, I2C, 1-Wire
- Supports more than 30 devices including ADC, DAC, sensors...
- Full Python library for the Server, GPIO, Serial, I2C, SPI and devices drivers
- Compatible with both Python 2 and 3
- Extensible and highly customizable



[Follow WebIOPi.](#)

WebIOPi is the perfect app to control your Pi from the web.

Login: webiopi

Password: raspberry

Tags: [gpio](#) [raspberry](#) [educational](#)

★★★★☆
4.0 stars (26 votes)

Free!

Free Download

Free Demo

Tip this Project (£)

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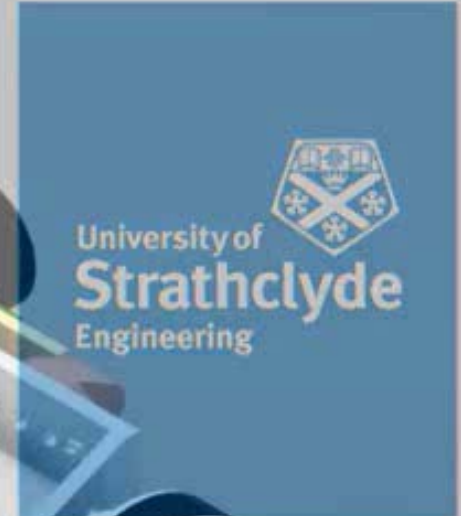
Promote This App

Promote this project on your blog or website with our HTML embed code. [Show the code](#)

What would I do differently?

- WiFi Access Point
- Camera – not at USB webcam because limited tether length
- Remove the PIC, a low level controller was unnecessary
- Chassis design
- Drop the ultrasound probe bit

Strathclyde
Inspection
Robot



**Thanks for
listening!**