**Project Name – Smart Tank**

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**Pitch**: *“Never run out of oil again! Smart Tank takes accurate readings from your oil tank and relays them directly to you via, web email and using our latest app. If you have smart heating technology Smart Tank can also disable your heating until your tank has adequate levels of heating oil avoiding air locks and avoiding the need to bleed the boiler.*

*Using the latest in ultrasonic sensor technology Smart Tank will let you know exactly how much oil is left in your tank and provide you with the option of requesting refill quotes from local oil distributors.*

*By taking continuous readings Smart Tank will allow you to monitor your consumption of oil, carbon footprint emissions and find the peak oil usage times.*

*Smart Tank can be retro fitted to any existing oil tank or added to the factory design of new oil tanks.*

*“Smart Tank – taking the stress out of oil heating”*

**Domain**: Smart Home

**Specification**: The prototype will be installed in the cap of the oil tank and use an ultrasonic sensor connected to the raspberry pi to measure the levels of oil in the tank. Home heating oil tanks are within close proximity to the dwelling therefore the prototyped device can utilise the home wifi to deliver readings to the IoT platform and the end user. The end user will be able to monitor the levels of oil in the tank as well as track usage and emissions. The device will also connect to other smart home devices such as smart thermostat to disable the heating system if there is insufficient oil in the tank preventing air locks.

When oil is running low the user will be asked if they would like to receive quotes on refills or part refills from local oil distributors. This will use geolocation data on the device to send email requests for quotes and availability to local oil companies contained in a database.

# Tools, Technologies and Equipment

**Hardware**: Raspberry Pi with HC-SR04 Ultrasonic Range Sensor connected via circuit board (using resistors to convert the output signal from 5V to 3.3V).

**Protocols**: Link Layer - 802.11**;** Network Layer – IP; Transport Layer - TCP; Application Layer – HTTP & MQTT

**Programming Languages:** Python, JavaScript, JSON, HTML & CSS, SQL

**IDE’s:** Visual Studio, WebStorm, Sublime

**Cloud Platform:** Wia

# Project Repository

<https://github.com/IsraelFinnerty/SmartTank>