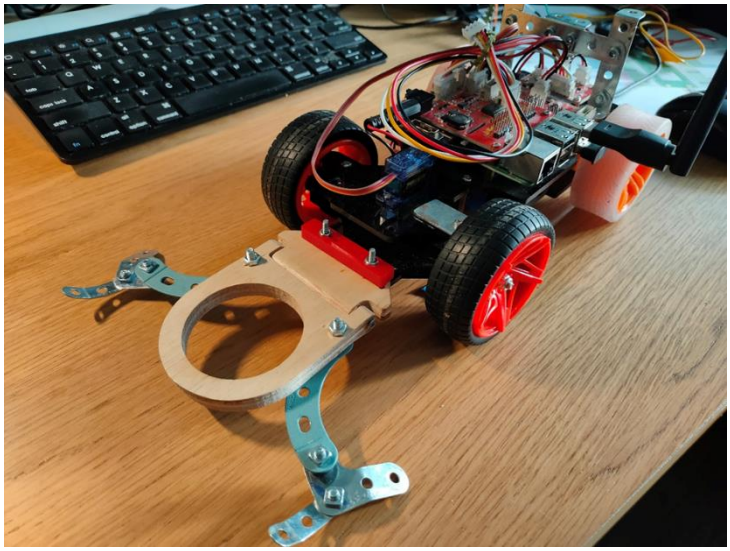
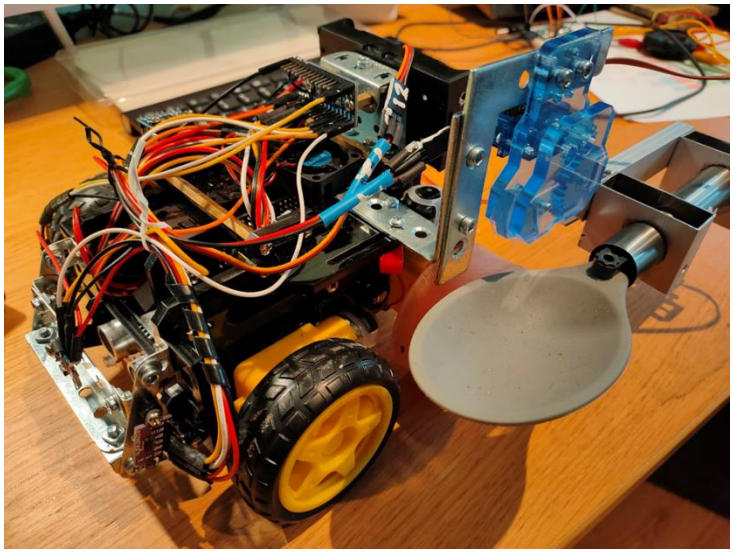
The Lichfield U3A robots

A (for ALICE) : Is based on a raspberry Pi v2



Alice carries 5 light sensors to locate a white line and is used for the Line-following challenge, the Skittles and the crazy Golf challenges.

B (for BOB): is a raspberry Pi version v4



A four-wheel drive buggy giving a tiny turning circle, and thereby enhanced manoeuvrability. Bob is used for the Maze challenge where it acquires positional information from 3 narrow beam laser distance measurement sensors and is adapted for the egg and spoon challenge

We are using the modern software coding language Python 3. The robot motor controls use readily available model engineering motors and Servos. Our sensors include 3 laser distance measurement devices to locate the robot position in a maze, and a 3-axis accelerometer to measure pitch angle within a closed loop servo control to balance an egg on a spoon while driving the robot over a rocking ramp.

For the 3 manual steering challenges we render a Web page on a phone screen and report back the phone pitch and yaw data using the internal smartphone sensors, these are normally used to rotate the screen image.