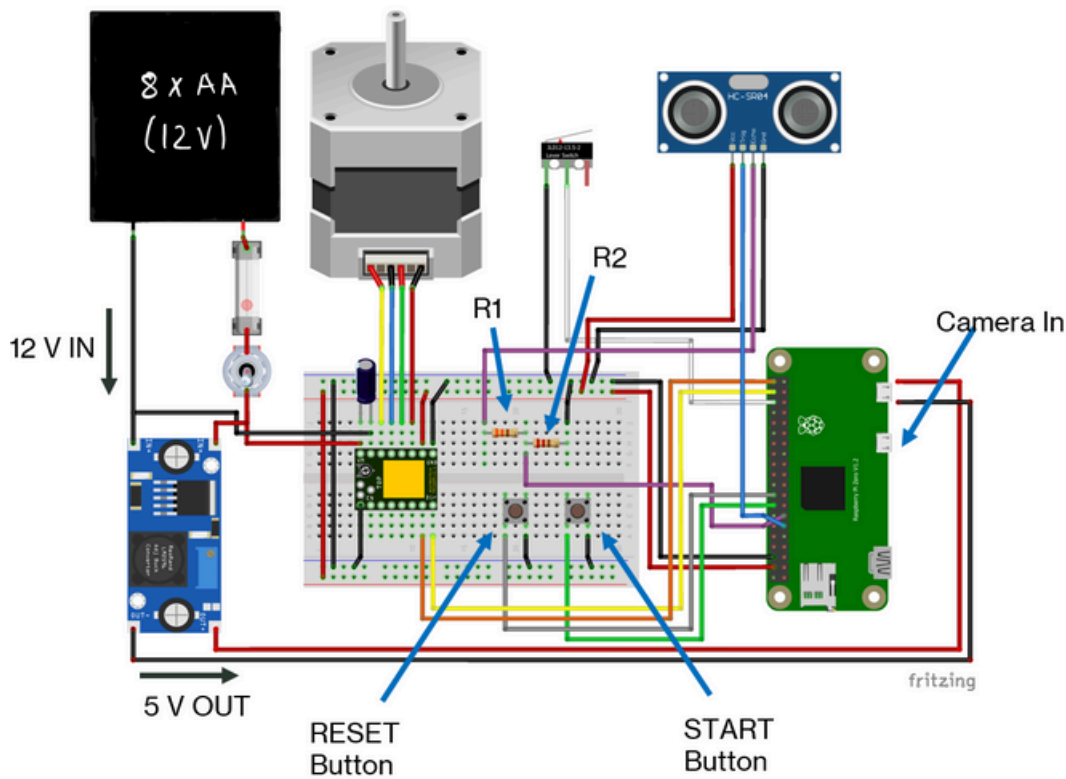
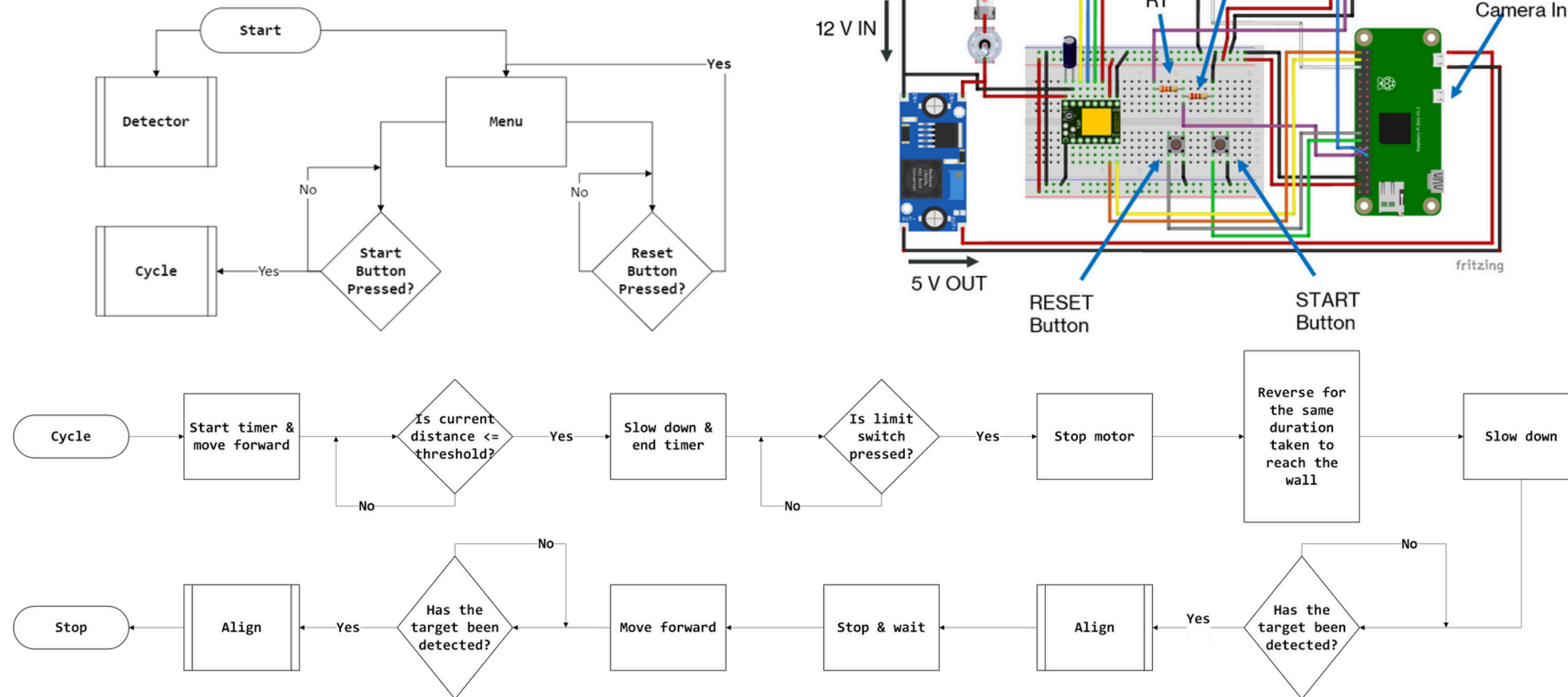


## Structure

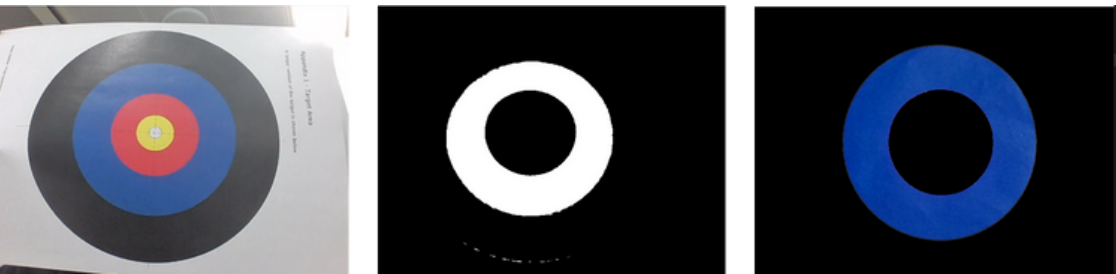
- Usage of iterative design and testing process
- Laser cut MDF base structure for best support
- Gap in centre of base to ensure best visual on target at a direct angle
- Motor run through a 4:3 reduction gear system to ensure smooth and stable movement
- Cable-routing channels to ensure neat presentation



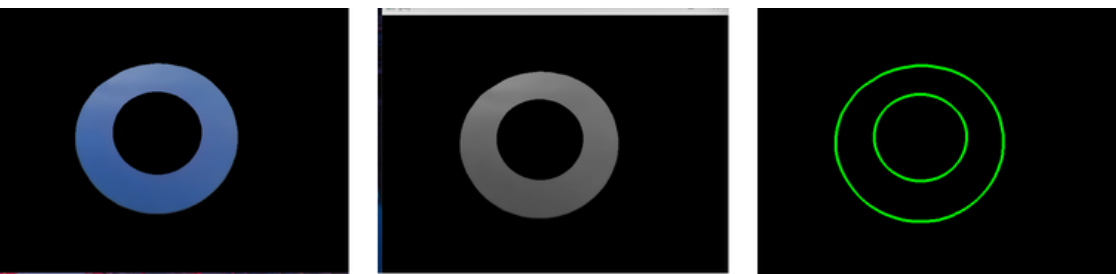
## Device Operation



## Target Detection

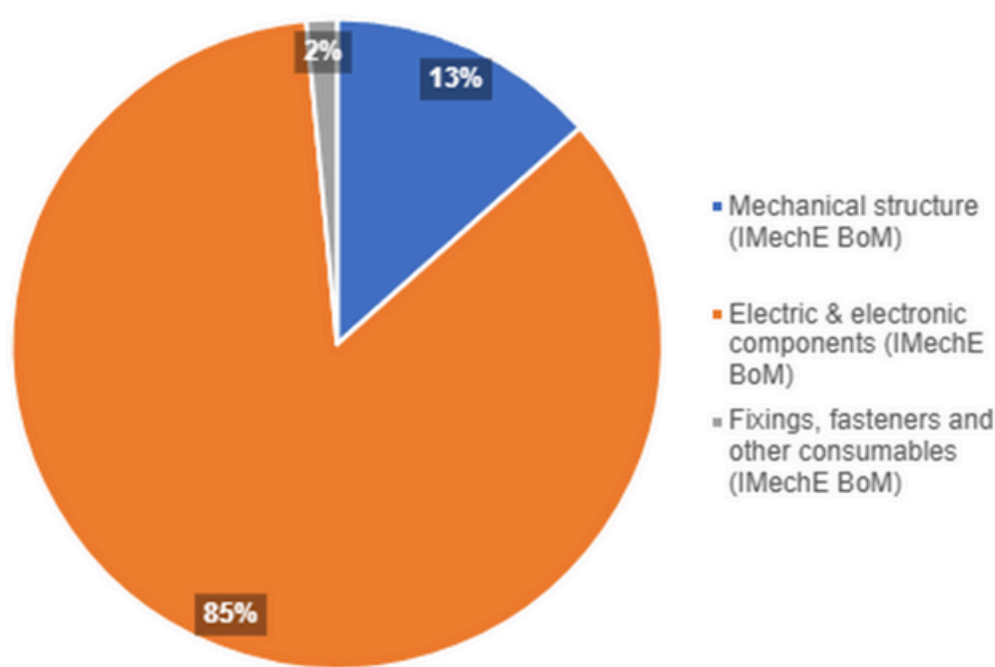


Video feed is processed to highlight specific the colour of interest to act as a mask. In this case, blue. The mask is applied to the input video.



Noise is removed from the masked video by applying a median filter. Then, converted to greyscale for easier contour detection. The Centre of the target is determined from the centre of largest contour.

## Bill of Materials



IMechE BoM Total: £73.07  
Comprehensive Total: £77.00  
Excess Funds: £6.93