

Are you scared of repairing your appliances?

Well....you should be.

Electronic products are rife with safety hazards!

From the potential to receive an electric shock, to the risk of being burned from hot surfaces, electronic products are not designed to be made safe for repair. While recent years has seen an increase in research focusing on making products easy to repair, the safety aspect of repair has been largely overlooked.

This thesis investigates how design can make consumer electronics safer to repair for consumers, using a coffee machine as a case study. The coffee machine was chosen as it is a commonly repaired product having a range of repair-related risks.

Analysis of two coffee machines revealed the following high-priority safety risks,

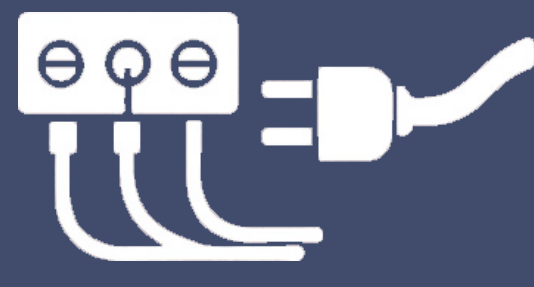
Electric shock while accessing internal components



Burns from hot residual water or boiler



Incorrect wire connections during reassembly



Incorrect hose reattached between components



Short-circuiting from spilled residual water



Electric shock during testing from uninsulated parts



Hoses are not attached securely during reassembly



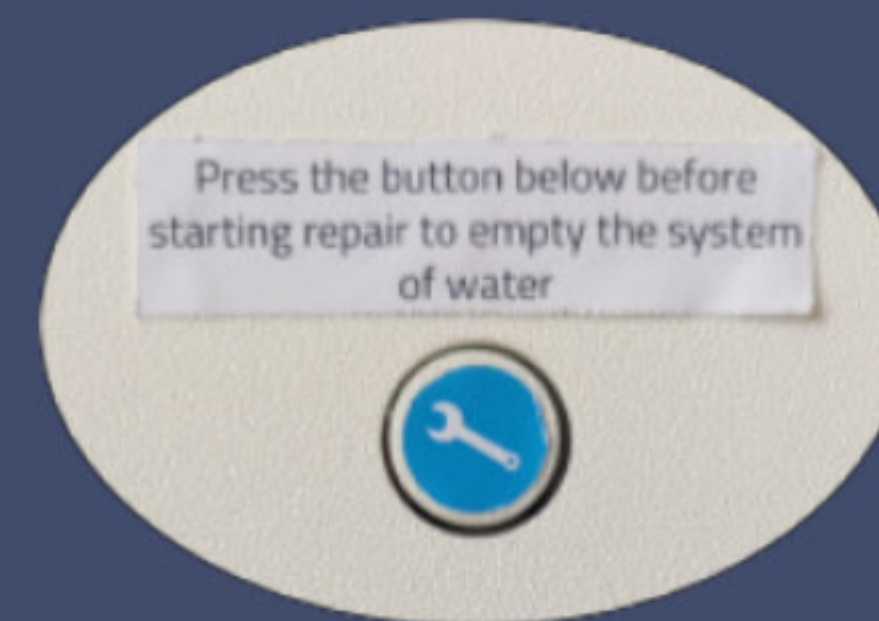
Hose is reattached in the incorrect orientation



To address these risks, design interventions were prototyped and tested to arrive at the embodiment shown on the right.

Redesigned coffee machine for safe repair

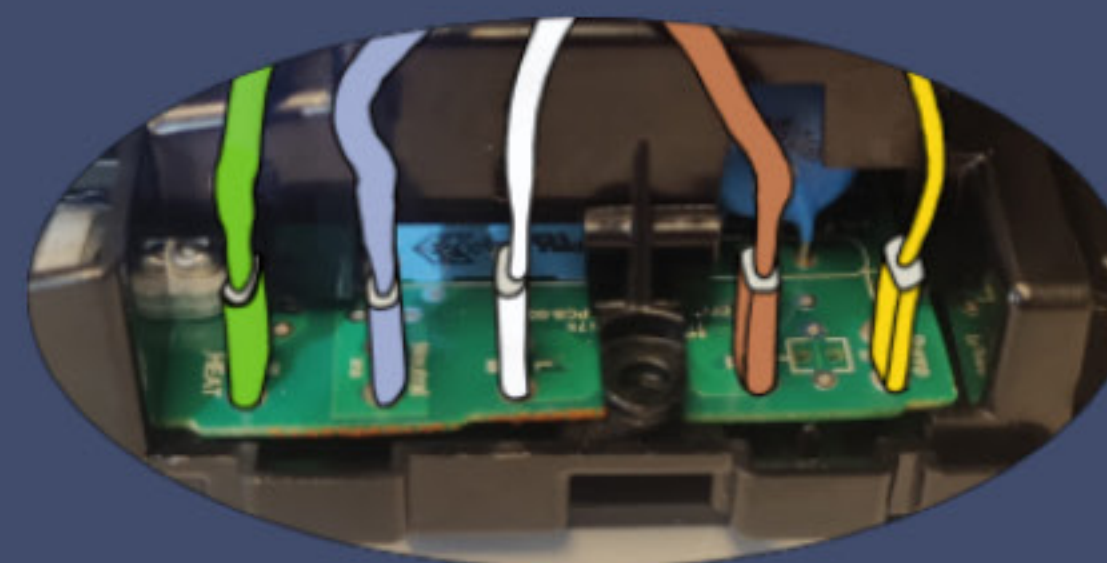
Button that expels residual water



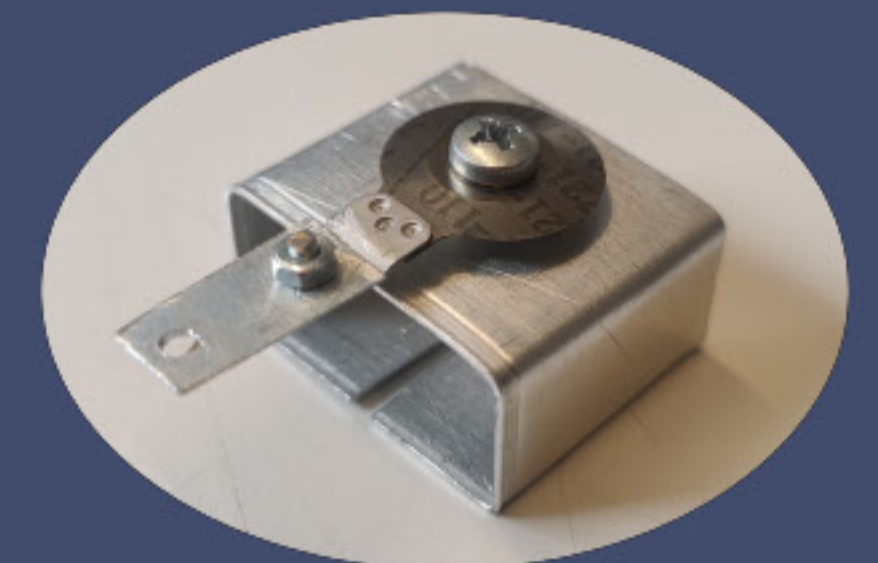
Colour-coded hose connections to aid reassembly



Colour-coded wire connections for easy reassembly



Bimetal that locks the machine when it is too hot to access



Threaded hoses for secure connection



Safety power interlock switch to prevent electric shock



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