Television Remote

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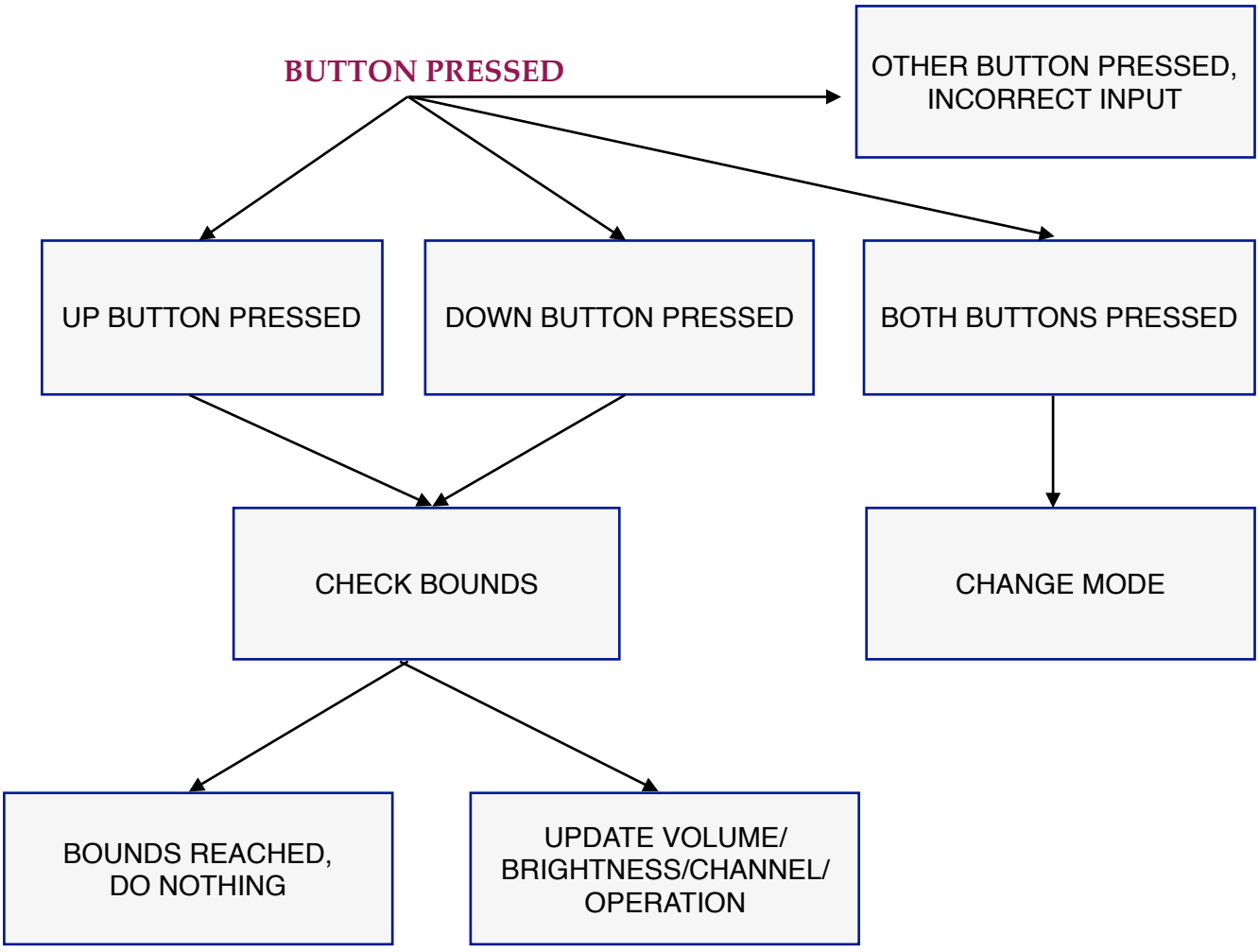
Operational description of how the application works.

When both buttons are pressed at the same time, the mode of the remote control changes. This is how you can flick through the four operations: Volume - 0 to 40, Brightness - 0 to 100%, Channel - 1 to 5 and Operating mode - On/Standby. Electronically, this would be implemented with an AND gate.

By pressing either the top or bottom button the volume/brightness/channel changes value up/down. This is of course not the case if the boundaries of the 0-40 volume, 0-100 brightness or 1-5 channel have ben reached. Both the volume and brightness level will remain at the bounds, say if you push 'up' when the volume is at 40, but in channel mode the number will circulate, so if you push 'up when on channel 5 the channel will become 1.

A diagram describing the architecture of your application.



A description of any software design principle(s) you have used in your solution and an explanation of why you have used them.

I tried to maximise usability. Through human computer interaction studies, it is apparent that by having two buttons on a device the user will expect a binary choice with each button representing an option. It is for this reason that I incorporated the dual button press option to change modes. This leaves both buttons to represent either up or down.

The key issue surrounding this approach is that it limits the design of the electronic device, as of course it must be designed to allow the user press both buttons simultaneously.

An explanation of what your approach would be to ensure the application is free of defects.

To try to ensure there are no defects, there would have to be a lot of testing. Cases such as if the buttons were pressed very quickly one after the other would have to be looked at. Another key case would be 'how simultaneous is simultaneous?', as it is very unlikely that users will be able to press the buttons exactly at the same time. This extends to the user most likely not wanting the change the channel or volume for example by accident, as they attempt to press both buttons.

Another testing aspect would be to see how the device responds when all power is removed. There is also the issue of the remote not matching the television figures as the remote is powered up again.

Therefore with this approach there would have to be many software tests, alongside further user testing.