Embedded Raycaster Engine Project Requirements

# Software

## Must have

* Full raycaster engine.
* Video rendering library, supporting color graphics.
* Coded entirely by myself, in pure C.
* Version control managed in Git.

## Should have

* EEPROM read/write for gamestate saving, along with memory protection.
* Random level generation, using the chip’s dedicated TRNG unit.
* Audio generation.
* Using features of the MCU, such as DMA, I2C, SPI, interrupts, timers and more.

## Could have

* Procedurally generated levels.
* Touchscreen integration.

## Won’t have

# Hardware

## Must have

* Complete PCB design, using 2 or 4 layers and mostly SMD components.
* Proper PCB design and EMI pattern elimination, such as ground bounce, ground loops, crosstalk and more.
* 3D-printed housing, using proper 3D design techniques.

## Should have

* Lithium battery for disconnected use.
* Battery management and charging circuitry.
* Housing printed in translucent resin, to allow for the visibility of internal components.

## Could have

## Won’t have