To save power on the M5Tab5, use the ESP32's low-power sleep modes, especially deep sleep, and control external power outputs to turn off unused components. Additionally, minimize active usage by dimming the screen, reducing sensor polling, and using efficient code.

ESP32 power saving modes

•**Deep Sleep:** This is the most effective mode for extending battery life, as it puts most of the chip into a low-power state. The device can be woken up by an RTC timer, a button press, or other external triggers, making it ideal for applications that only need to run periodically.

•**Light Sleep:** Preserves the RAM but powers down most other components. It is a good option for situations where the device needs to wake up quickly but is in an idle state for a significant amount of time.

•**Modem Sleep:** The CPU is active, but the WiFi or Bluetooth radio is put into a low-power state when not in use.

Hardware and peripheral control

•**Control external outputs:** The Tab5's M5.Power API can control the power to expansion ports and the USB-A port, which is useful for disabling power to connected peripherals when they are not needed.

•**Disable 5V DCDC:** If you're not using the 5V DCDC converter (U6), disabling it can halve power consumption. Some users suggest a hardware modification to allow the ESP32 to control this switch, preserving the power button function.

•**Power down unused components:** If you are designing a custom application, ensure that you manage the power to all external components, turning off anything that is not in active use.

Software and usage optimizations

•**Reduce screen brightness:** Lowering the screen brightness can lead to significant power savings.

•**Optimize sensor usage:** Reduce the rate at which sensors are polled. If a sensor doesn't need to be read constantly, read it less frequently.

•**Efficient code:** Optimize your code to perform tasks quickly and efficiently, reducing the overall time the device needs to be active. For example, run tasks in the background if possible or only wake up when a specific event occurs.

Additional strategies

•**Use an external battery:** The M5Stack ecosystem offers external battery modules that can be stacked to increase battery life, such as the M5GO Bottom2.

•**Manage battery health:** Some devices can be programmed to charge and discharge their batteries to optimal levels to extend battery lifespan.