**HARMAN I2C Driver Block Diagram**

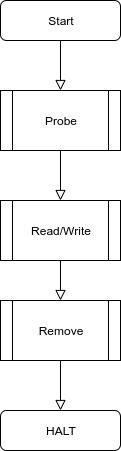
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Figure 1: operations implemented by the driver.

**Summary Of Project**

The driver code comprises of the following callbacks.

1. Probe
2. Remove
3. Read
4. Write
5. Interrupt Handler

Each of these features are further described below with the help of a flow graph

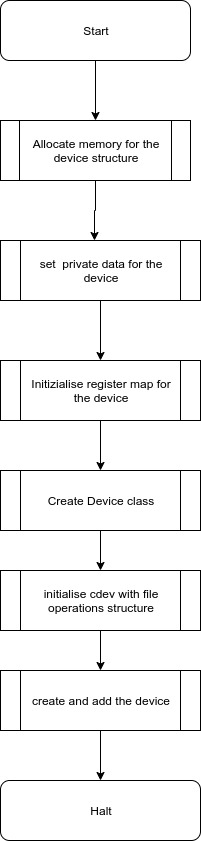


Figure 1: Probe flowgraph

1. Probe: The probe function is called when an entry in the id\_table name field matches the device's name.Probe is used for binding a device with its corresponding driver.

The flow graph of probe function is shown below.

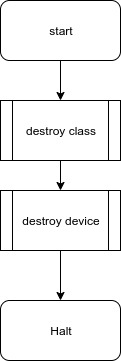


Fig 2: Remove callback

1. Remove: This call back is responsible for destroying the class and device which were created in the probe function and also freeing any unfreed memory

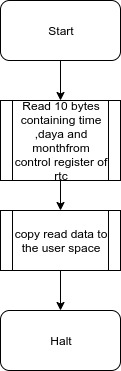


Fig 3: Read Operation:

1. Read : The read file operation is responsible for reading 10 bytes(time, daya and month) using regmap\_bulk\_read() from the rtc device and copying the read data to user space buffer using copy to user api.

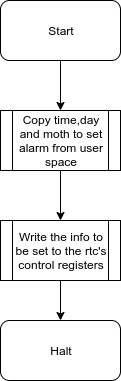


Fig 4: Write Operation

1. Write Operation: Uses dev\_dbg api to receive time, day and month information to be written from user space and write the same to the rtc device using regmap\_bulk\_write().

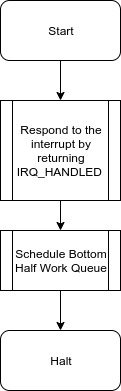


Fig 5) IRQ Handler

1. Interrupt Handler: An interrupt handler routine is also provided which initiates a i2c read operation and reads from the control register of the rtc device.The Raspberry Pi Pin 19 is connected to switch which triggers an interrupt on Falling Edge.The irq is appropriately configured to handle the falling edge interrupt. The interrupt handler uses a workqueue as a bottom half technique to defer reading of the device.

Refer flowgraph attached on the next page