FITNESS TRACKER

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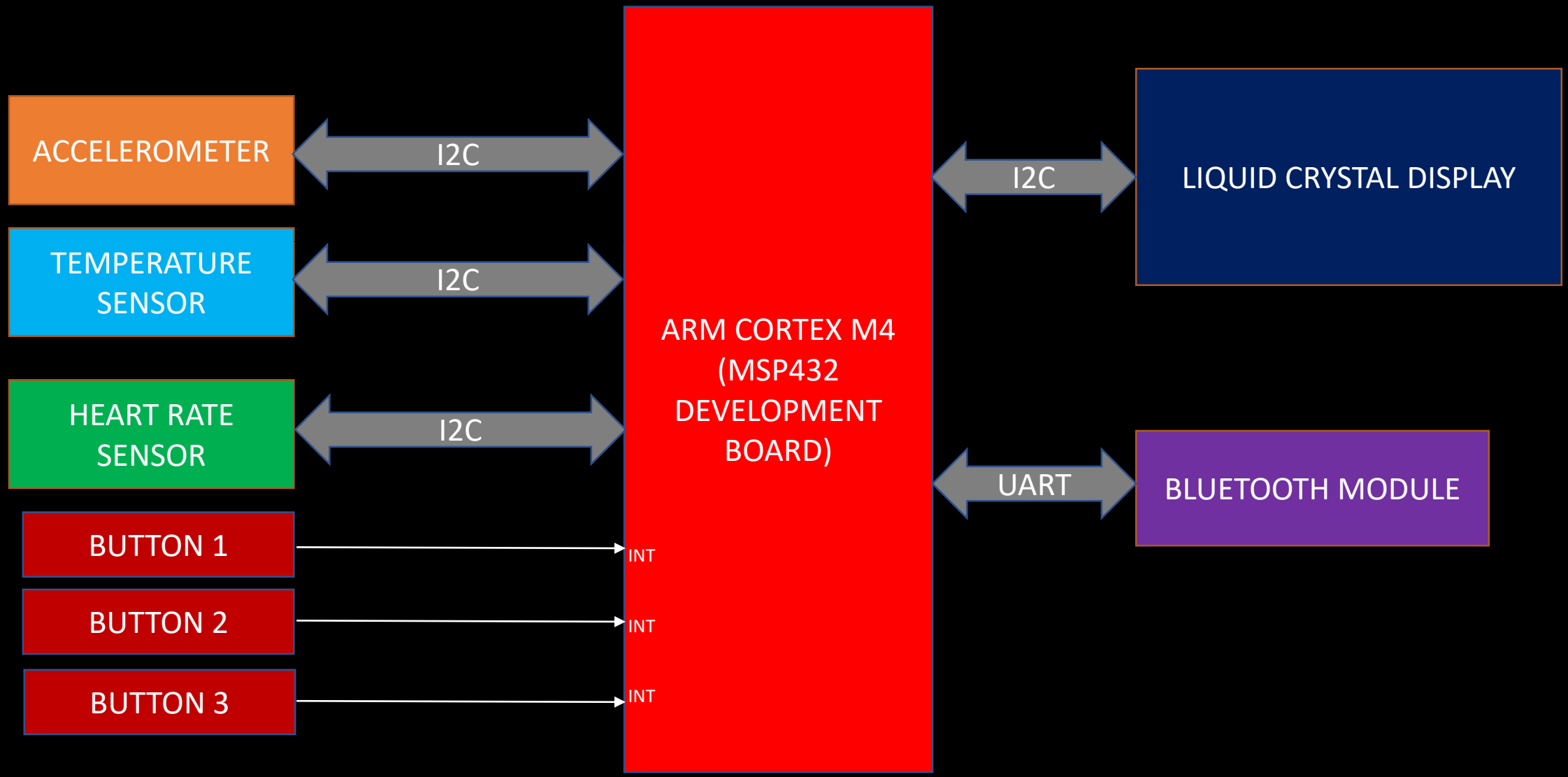
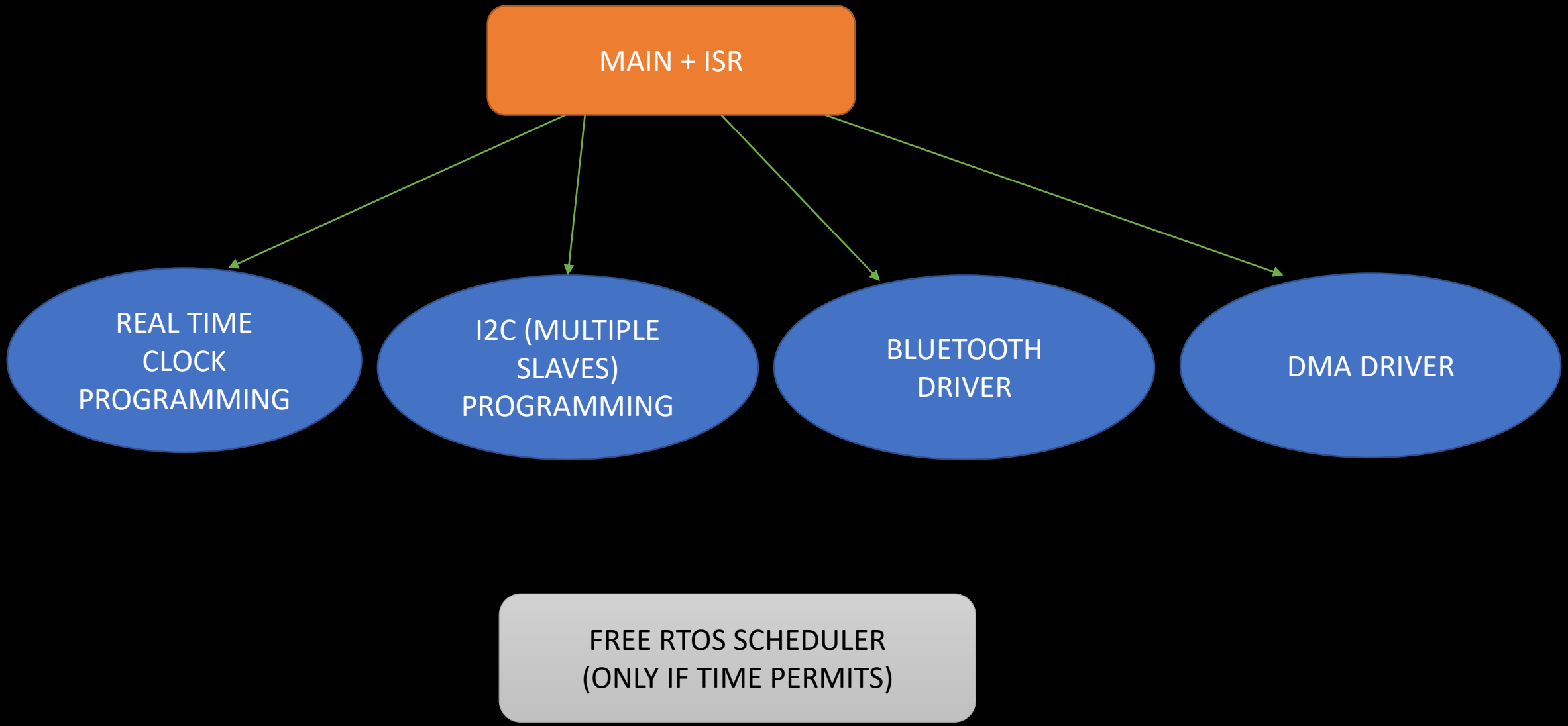
EMBEDDED SYSTEM DESIGN

HARDWARE BLOCK DIAGRAM



SOFTWARE BLOCK DIAGRAM



COMPONENT SELECTION

- ACCELEROMETER : LSM6DS3 (PURCHASED)
- HEART RATE SENSOR: MAX30105 (PURCHASED)
- TEMPERATURE SENSOR: HAVENT FINALISED
- BLUETOOTH MODULE: HC-05 (NOT YET PURCHASED)
- LCD DISPLAY: ADM12864H (HAD IT ALREADY)
- PROCESSOR: CORTEX M4 – MSP432 (HAD IT ALREADY)
- BUTTONS: TACTILE BUTTONS(NOT YET PURCHASED)

GANTT CHART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October
November
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VI
vikrant
Develop I2C driver for accelerometer and heart rate sensor
Develop driver for Bluetooth
Integrate them and try to use Freertos

POTENTIAL RISK AND MITIGATION

1) Multiple slaves on I2c bus may cause bus contention
- Idea is to solve it using some kind of lock

2) Free RTOS may take much more time to be implemented
- Free RTOS is already a stretch goal. May or may not be implemented depending upon time left. Atleast I will have basic system working with help of Main + ISR

REFERENCES

- https://app.teamweek.com/#timeline/365552/groups/325965?zoom=month
- https://www.sparkfun.com/
- https://www.news-medical.net/health/Types-of-sensors-in-wearable-fitness-trackers.aspx