Embedded Bluetooth Communication System

Team: REDSOLOCUP
CIS 641 - 02

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- GVSU
- Combined ACS Master / CE Bachelor Student

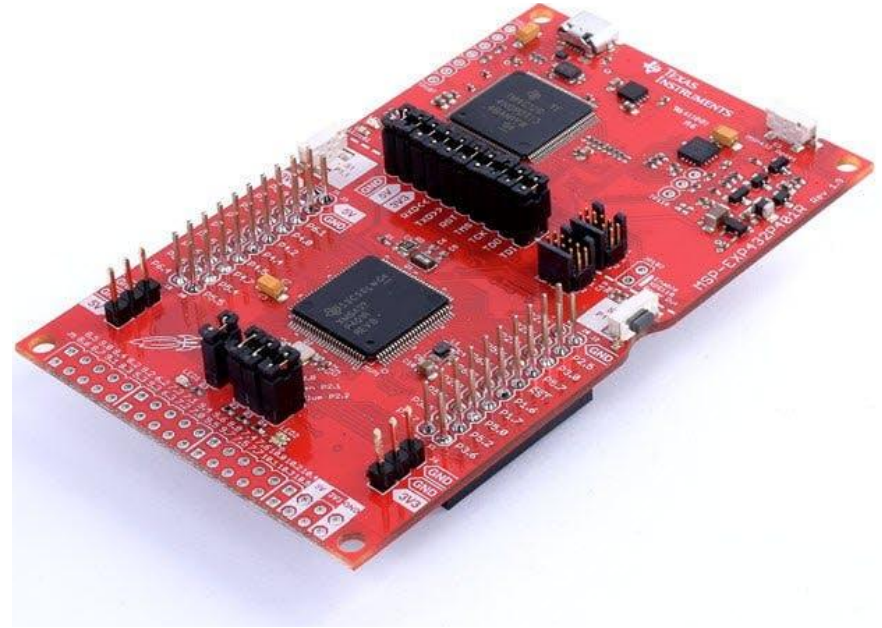- Embedded System Design / Maintenance

Project Description

- CORE ~~ User able to enter message using a serial terminal (e.g. TeraTerm) and send to another user using the same system

- User #1 enters message in serial terminal → message sent serially to microcontroller → message converted to bluetooth format → message sent via bluetooth and received by system #2 → message converted to serial format in system #2 → message sent serially to secondary terminal → message viewable on serial terminal to User #2

- Three main parts to system:
  a. Bluetooth transmission
  b. UART (serial) transmission
  c. Message handling

Hardware/ Software

- MSP432 Microcontroller

- HC05 Bluetooth Module

- Embedded C using Code Composer Studio

- MSP432WARE middleware

Terminal Styling

- Loosely resemble VT100 style terminal
- Ability to accept ANSI escape codes
    - Allows developer to use color and additional characters to create art and format character position
    - Important for user application- visually appealing, easier to navigate

You are: USER #1   [F1] connect/disconnect

[YOU ARE NOW CONNECTED TO USER #2]
User #1: hi
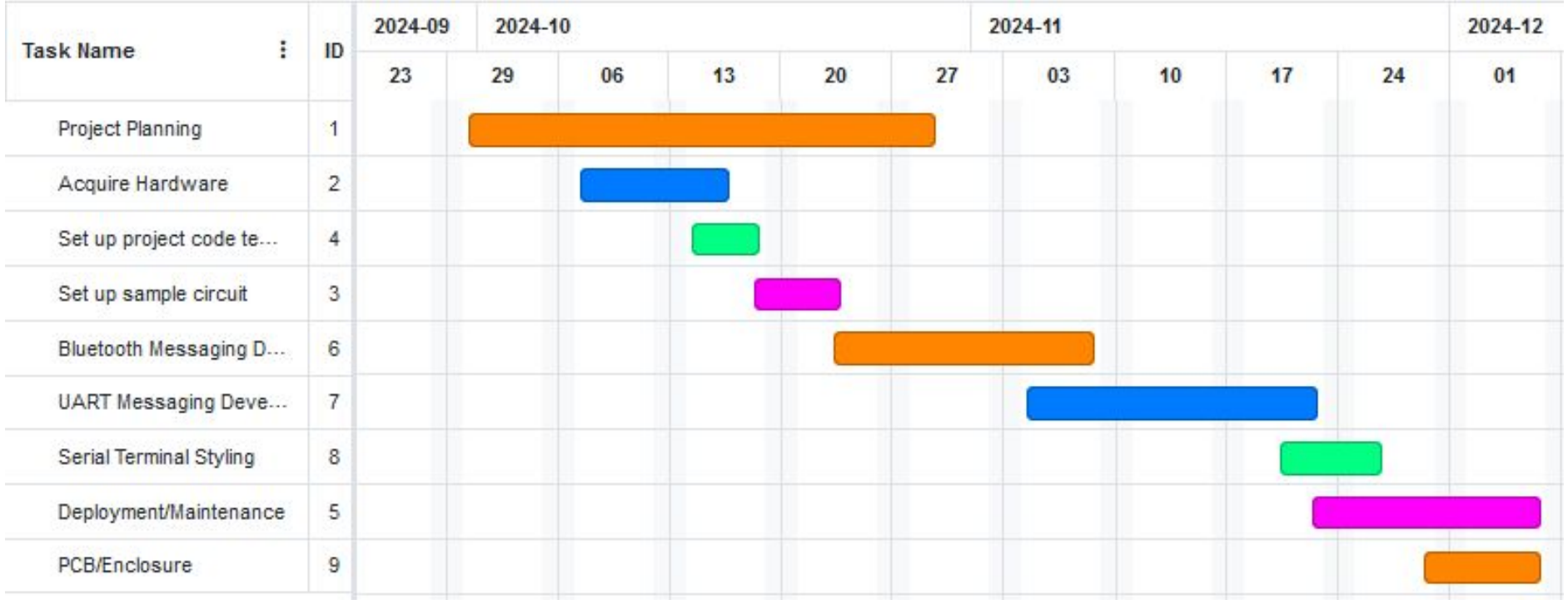User #2: how are you today
User #1: hi
User #2: how are you today
User #1: hi
User #2: how are you today

[Enter Message]: ....

Project Timeline / Responsibilities

Task Name	⋮	ID	2024-09		2024-10					2024-11					2024-12
			23	29	06	13	20	27		03	10	17	24		01
Project Planning		1													
Acquire Hardware		2													
Set up project code te...		4													
Set up sample circuit		3													
Bluetooth Messaging D...		6													
UART Messaging Deve...		7													
Serial Terminal Styling		8													
Deployment/Maintenance		5													
PCB/Enclosure		9													

[Everything assigned to Isaiah]

Current Progress

- Got off to a slow start, but am currently back on track

- Currently in the bluetooth messaging development stage

- Worried about time needed for ANSI styling, might be a little more involved than I initially thought → may need to adjust timeline accordingly

Questions?