

Embedded Bluetooth Communication System

Team: REDSOLOCUP
CIS 641 - 02





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- ❏ Embedded System Design / Maintenance





Project Description

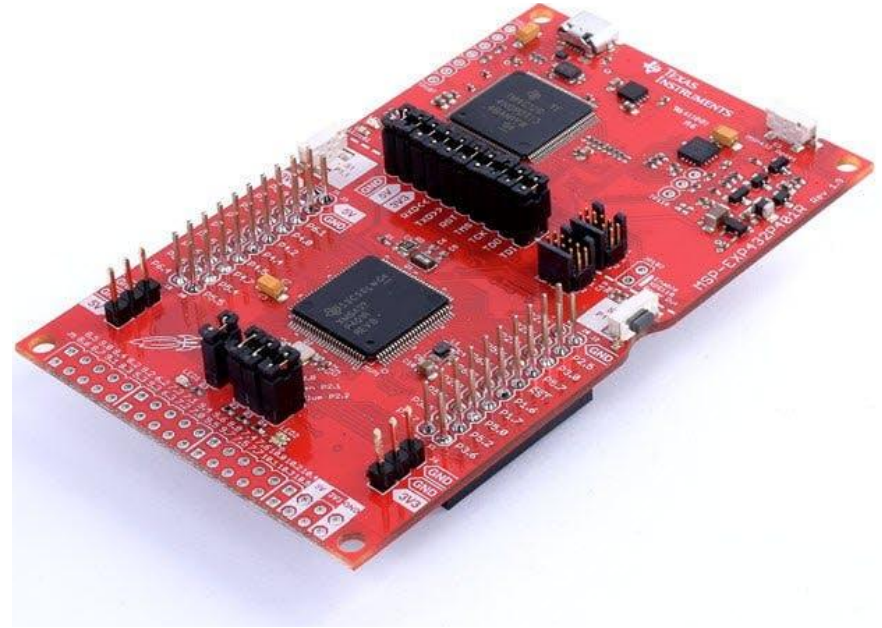


- CORE ~~ User able to enter message using a serial terminal (e.g. TeraTerm) and send to another user using the same system
- User #1 enters message in serial terminal → message sent serially to microcontroller → message converted to bluetooth format → message sent via bluetooth and received by system #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



```
CPU[|||||] 2.0% Tasks: 16 total, 1 running
Mem[|||||] 13/123MB Load average: 0.37 0.12 0.04
Sup[|||||] 0/109MB Uptime: 00:00:50
```

PID	USER	PRI	NI	UIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
3692	per	15	0	2424	1204	980	R	2.0	1.0	0:00.24	htop
1	root	16	0	2952	1852	532	S	0.0	1.5	0:00.77	/sbin/init
2236	root	20	-4	2316	728	472	S	0.0	0.6	0:01.06	/sbin/udevd --daemon
3224	dhcp	18	-2	2412	552	244	S	0.0	0.4	0:00.01	/sbin/dhclient3 -c IF_ME
3488	root	18	0	1692	516	448	S	0.0	0.4	0:00.00	/sbin/getty 38400
3491	root	18	0	1696	520	448	S	0.0	0.4	0:00.00	/sbin/getty 38400
3497	root	18	0	1696	516	448	S	0.0	0.4	0:00.00	/sbin/getty 38400
3500	root	18	0	1692	516	448	S	0.0	0.4	0:00.00	/sbin/getty 38400
3501	root	16	0	2772	1196	936	S	0.0	0.9	0:00.04	/bin/login --
3504	root	18	0	1696	516	448	S	0.0	0.4	0:00.00	/sbin/getty 38400
3539	syslog	15	0	1916	704	564	S	0.0	0.6	0:00.12	/sbin/syslogd -u s
3561	root	18	0	1840	536	444	S	0.0	0.4	0:00.79	/bin/dd bs 1 if /p
3563	klog	18	0	2472	1376	408	S	0.0	1.1	0:00.37	/sbin/klogd -P /va
3590	daemon	25	0	1960	428	308	S	0.0	0.3	0:00.00	/usr/sbin/atd
3604	root	18	0	2336	792	632	S	0.0	0.6	0:00.00	/usr/sbin/cron
3645	per	15	0	5524	2924	1428	S	0.0	2.3	0:00.45	-bash

```
F1Help F2Setup F3Search F4Invert F5Tree F6SortBy F7Nice F8Nice F9Kill F10Quit
```



TeraTerm



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

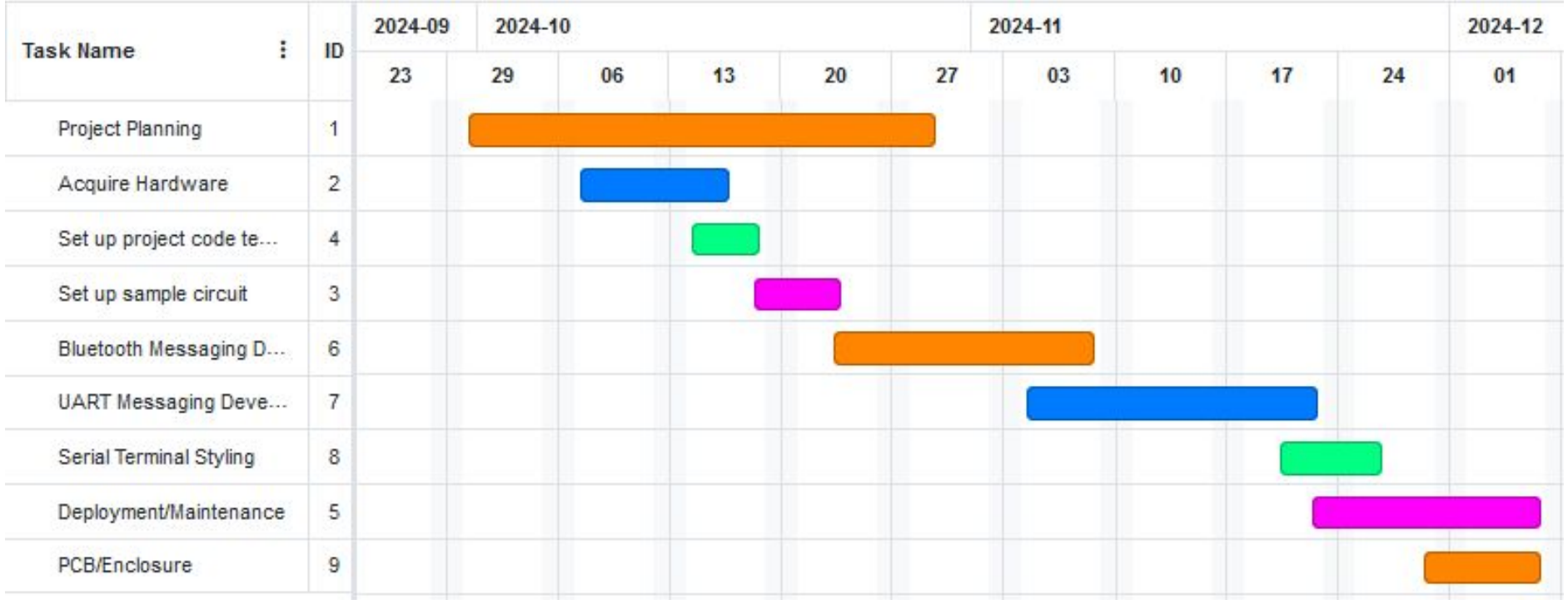
User #1: hi

User #2: how are you today

[Enter Message]:

Project Timeline / Responsibilities





[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?