Tiva-C GPS Tracker

Introduction to Embedded Systems
CSE211
Group (2)

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GitHub Repository:

Tiva C: GPS Tracking System using Arm Cortex -M

YouTube Video:

Tiva C: GPS Tracking System using Arm Cortex -M

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Components Used:

Component	Amount
Tiva C	1
ESP8266 NodeMCU	1
Ublox NEO-6m GPS Module	1
Character LCD Module 16x2	1

Tiva-C Modes:

Code	Name	Led	Function
0	Inactive	OFF	Listening for Switch 2 (PF0) to be clicked to start Initialization
1	Initialization	Turquoise (GB)	1- Wait for GPS fix 2- Get current position and send it to server (optionally to be used as a start point)
2	Positioning	Yellow (RB)	Wait until Tiva is in start point (in case start point is same as sent point in initialization this mode is skipped)
3	Active	Green (G)	1- Start tracking sending coordinates every ~4 seconds 2- calculate distance from current and last reading and add it to total distance 3- Update 7-Segments by showing 4- Update LCD showing current position
4	Pre-Reset	Blinking Purple (BG)	Just blink indicating the end of journey waiting for reset

GPS Modes:

Led Color	Function
Blue	(Blinking) GPS not ready (Waiting for GPS fix)
Red	Data corrupted

Tiva-To-Server Commands:

Command	Function
@I,lat,log	Request Start and End Points sending current latitude and longitude
@G,	(Sent by ESP8266 not Tiva) Get start and end point submitted by the user
@S,lat,log	Send current latitude and longitude indicating the Start of tracking
@C,lat,log	Send current latitude and longitude while tracking indicating new reading
@E,lat,log	Send current latitude and longitude indicating the End of tracking
@T,data	Used for testing purposes

Server-To-Tiva Commands:

Command	Function
$S,sLat,sLog,eLat,eLog;	Send start and end points to Tiva
$F,	Notify the Tiva that there was an error while sending HTTP request (Not yet fully implemented)