CMPE258
Semester Long Team Project On Embedded Software Systems
HL

1. Design and implement a team project based on each 2-person team (or individual person). The project requirements are listed in details below. Note this project counts total 10 points and is due at the end of the semester and it requires a team presentation in the last week of the semester.

2. The technical requirements of the projects:
(2.1) Design and implement your team project which has to utilize embedded Linux OS on your chosen target platform, Jetson NANO, or Broadcom Pie.
(2.2) The prototype system must consist of embedded software, with Kernel OS, Device Drivers, and High Level Programming Languages, Python, or C/C++.
a. In the implementation process, Kernel OS distribution image has to be downloaded from the professional grade developer site(s) such as Nvidia Developer Forum, then configured, compiled, and built using the development platform and tools, including menuconfig for example.
b. Device drivers including GPIO, PWM, I2C, and SPI have to be enabled, and utilized in the project design and implementation.
c. The design and implementation of the project must cover vertical integration including not only kernel space (OS image and device drivers) but also user space which consists of user programs in Python or C/C++ integrated with Web server to support smartphone browser based operation or smartphone APP based operations.
d. The design and implementation must consist of hardware prototype system consisting of motors, motor driver board, sensors to form action based, software controlled, integrated embedded software solution.
(2.3) Using open source professional development platforms and tools to realize the embedded software system design is encouraged and is a plus.

3. One page project executive summary:
(3.1) Create one page executive summary of your project, with the following information
a. Title of the Project
b. List of each team members: First Name, Last Name, SID, Email Address, and Affiliation (such as Computer Engineering, Software Engineering, MS AI);
c. Team coordinator: Identify the team coordinator;
d. Abstract (up to one page):
Describe
(i) the objectives of the project ;
(ii) the technical challenges;
(iii) the proposed methodology to be employed;
(iv) the software tools and hardware platform;
(v) results and deliverable;
(vi) Experience gained and/or lessons learned.
e. table with list of the work contributed by each team member

Person's First then Last Name or Team member's Name	Coding responsibility and/ or Hardware Prototyping Responsibility	Contributions, in the areas of (1) Any coding and the % of the entire project; (2) Testing, Verification;

		(3) PPT; (4) Executive summary; (5) coordinator; (6) others

(3.2) Create readme document for your project.

4. Presentation and program demo:
(4.1) PPT (up to 5-7 slides) for 5-7 minutes presentation;
(4.2) Demo (1 pt);
(4.3) Code walk-through;
(4.4) Q&A session.

5. Save up to 20 ~ 50 seconds demo video into a file for submission.

6. Submit (Rubrics and grading policy):
a. Executive Summary (1 pt);
b. PPT (3 pts);
c. Your saved video clip (1 pt);
d. The program package, source code and all relevant files and folders, (3 pts);
e. A readme file. Be sure detailed adequate information is provided for testing and verification purpose (2 pts).
Note: the format of the document counts upto 2 pts.

7. Put all the above files into one file and zip it.

8. Use the following file naming convention for your zip file:
firstNamePerson1_firstNamePerson2_FirstNamePerson3_FirstNamePerson4_CoordinatorSID(last-4-digits)_cmpe244_team.zip.
Submit it to the class canvas.

(END)