

Instruction of opening ECE4220 project of Junkai Cai

Steps

1. Install kernel module "HC_SR04Kernel.o"
2. Execute "FinalProjectFairComRead"
3. Execute "FinalProjectFairComDisplay"
4. Execute "SensorReading.ino" in Arduino
5. Execute "CameraCapture" in CodeBlocks
6. Using bookmark in pdf or the Table of Contents to scan the report

Kernel Module "HC_SR04Kernel"

- An Eclipse project "HC_SR04Kernel" is under the path
"CommentedCode\Eclipse\HC_SR04Kernel"
- To use the module, install kernel model "HC_SR04Kernel.o" in
"CommentedCode\Eclipse\HC_SR04Kernel\Release"
- You can also compile the object file from source code. Please use makefile under
"CommentedCode\Eclipse\HC_SR04Kernel\Release"
- The kernel module can trigger a 2ms pulse every 10ms on PortA0 of TS-7250 board and detect interrupt by rising edge and falling edge on PortA1 of TS-7250 board
- It is designed for HS-SR04 Ultrasonic sensor

FairCom Reading Distance Program "FinalProjectFairComRead"

- An Eclipse project "FinalProjectFairComRead" is under the path "CommentedCode\Eclipse
\FinalProjectFairComRead"
- To start this program, you must run the FairCom server on TS-7250 board first

- To start, you can execute “FinalProjectFairComRead” under “CommentedCode\Eclipse \FinalProjectFairComRead\Release”
- You can also compile from source code. Please use makefile under “CommentedCode\Eclipse \FinalProjectFairComRead\Release”
- Highly recommend to install the kernel module “HC_SR04Kernel” before start this program

FairCom Displaying Program “FinalProjectFairComDisplay”

- An Eclipse project “FinalProjectFairComDisplay” is under the path “CommentedCode\Eclipse \FinalProjectFairComDisplay”
- To start this problem , you must run the FairCom server on TS-7250 board first
- To start, you can execute “FinalProjectFairComDisplay” under “CommentedCode\Eclipse \FinalProjectFairComDisplay\Release”
- Highly recommend to install the kernel module “HC_SR04Kernel” before start this program
- Highly recommend to run FinalProjectFairComRead first before this program, in case there is no record in the database

Arduino Reading Sensor Program “SensorReading”

- An Arduino code file “SensorReading.ino” is under the path “CommentedCode\Arduino\SensorReading”
- Connect Arduino with HC-SR04 distance sensor. Connect “Trig” to DIO pin #5, “Echo” to DIO pin #6.
- Open Arduino IDE 1.60 or higher and uploading the code to Arduino
- Press “Ctrl+Shift+M” to open Serial Monitor in Arduino IDE and make sure the baud rate is set to 9600

OpenCV Reading Image Program “CameraCapture”

- A CodeBlocks project “CameraCapture.cbp” is under path
“CommentedCode\CodeBlocks\CameraCapture”
- Open it with CodeBlocks 10.05 or higher. (Highly recommend to use the OpenCV integrated version of CodeBlocks)
- Download OpenCV 3.0 and configure Environmental Variable of your system
- Configure OpenCV library correctly with CodeBlocks
- Compile and Run the code in CodeBlocks
- Press <ENTER> key to capture image from camera
- The default camera is camera device #0 on your machine.