



Embedded System Architecture 2

LAB 4

FALL 2019

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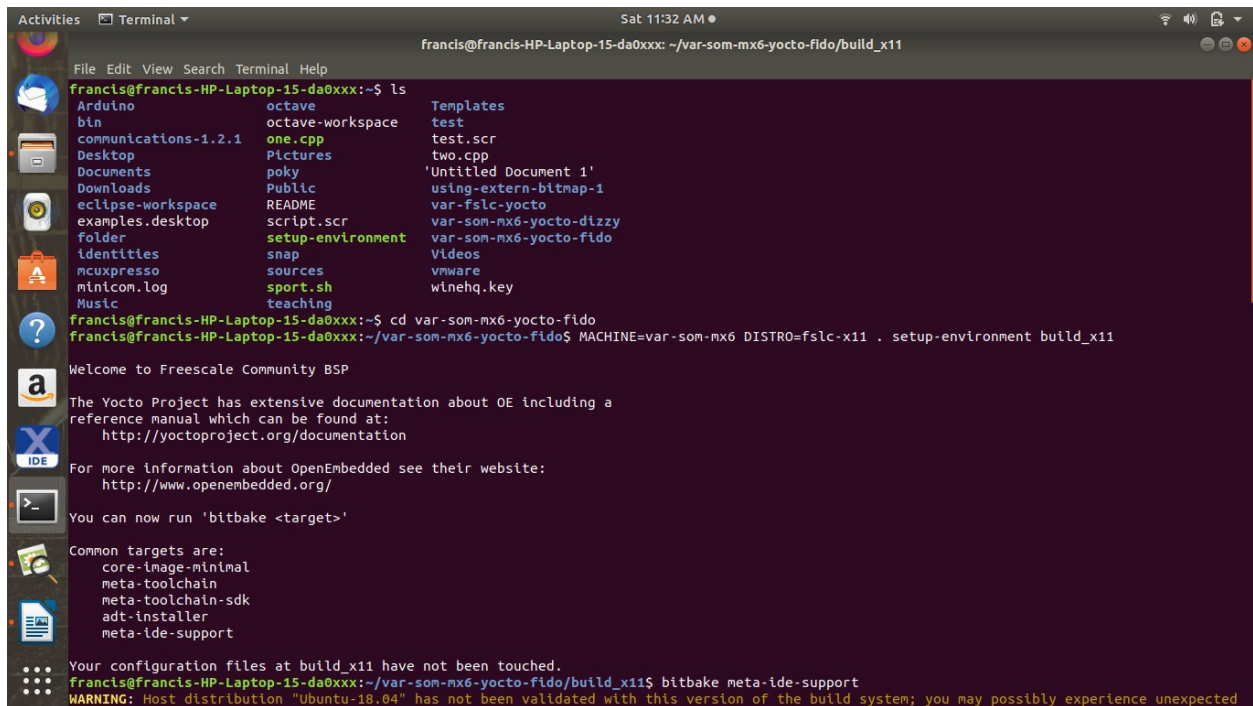
CLASS: ESE 3005

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Lab 2 Touchscreen GUI Development

BUILDING THE TOOL CHAIN FOR YOCTO BUILDS



The screenshot shows a terminal window on a Linux system. The user is in the directory `~/var-som-mx6-yocto-fido/build_x11`. They run `ls` to list the contents of the directory, which includes files like `octave`, `octave-workspace`, `one.cpp`, `Pictures`, `poky`, `Public`, `README`, `script.scr`, `setup-environment`, `snap`, `sources`, `sport.sh`, `teaching`, `Templates`, `test`, `test.scr`, `two.cpp`, `'Untitled Document 1'`, `using-extern-bitmap-1`, `var-fslc-yocto`, `var-som-mx6-yocto-dizzy`, `var-som-mx6-yocto-fido`, `Videos`, `vmware`, and `winehq.key`.

Next, the user runs `cd var-som-mx6-yocto-fido` and then `MACHINE=var-som-mx6 DISTRO=fslc-x11 . setup-environment build_x11`. This command sets up the Yocto build environment for the `var-som-mx6` machine and `fslc-x11` distribution.

The terminal then displays a welcome message from the Freescale Community BSP and provides information about the Yocto Project and OpenEmbedded. It lists common targets: `core-image-minimal`, `meta-toolchain`, `meta-toolchain-sdk`, `adt-installer`, and `meta-ide-support`.

Finally, the user runs `bitbake meta-ide-support`. The terminal shows a warning: `WARNING: Host distribution "Ubuntu-18.04" has not been validated with this version of the build system; you may possibly experience unexpected`.

```
Activities Terminal Sat 11:32 AM francis@francis-HP-Laptop-15-da0xxx: ~/var-som-mx6-yocto-fido/build_x11

File Edit View Search Terminal Help
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/build_x11$ bitbake meta-ide-support
WARNING: Host distribution "Ubuntu-18.04" has not been validated with this version of the build system; you may possibly experience unexpected
failures. It is recommended that you use a tested distribution.
Parsing recipes: 100% |#####| Time: 00:00:39
Parsing of 2068 .bb files complete (0 cached, 2068 parsed). 2584 targets, 153 skipped, 3 masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION = "1.26.0"
BUILD_SYS = "x86_64-linux"
NATIVELSBSTRING = "Ubuntu-18.04"
TARGET_SYS = "arm-poky-linux-gnueabi"
MACHINE = "var-som-mx6"
DISTRO = "poky"
DISTRO_VERSION = "1.8"
TUNE_FEATURES = "arm armv7a vfp thumb neon callconvention-hard cortexa9"
TARGET_FPU = "vfp-neon"
meta
meta-yocto = "(nobranch):ee88b51cf2853ab075c9bd2ef7cf4d65d1c96674"
meta-oe
meta-multimedia = "(nobranch):10d3c8f85280a0bf867a8e4f84bcd81c290d28e"
meta-fsl-arm = "(nobranch):92f95101da529f4b67ef8d1af50ce762f81f40ad"
meta-fsl-arm-extra = "(nobranch):0786aa76f4772ea7b83d4bab10567c4530b2d1bc"
meta-fsl-demos = "(nobranch):836bdf5a9d500ed258f1ddc07d89eca74a704098"
meta-bsp
meta-sdk = "(nobranch):1b5d466510723a4b3e4a841e6bf86915def65094"
meta-browser = "(nobranch):30b8d6b3d0d6501c56ef6967a2fa3a3d4bf5fe9"
meta-gnome
meta-networking
meta-python
meta-ruby
meta-filesystems = "(nobranch):10d3c8f85280a0bf867a8e4f84bcd81c290d28e"
meta-qt5 = "(nobranch):fc026381545650e10fdd488d5b2a3b2d78f87793"
meta-variscite-mx6 = "lnx_3.14.38_6qp-var02:0ece0f9c09eb9f37f76bf922991e1859e36e5113"

NOTE: Preparing RunQueue
NOTE: Executing SetScene Tasks
NOTE: Executing RunQueue Tasks
```

```
Activities Terminal Sat 11:34 AM francis@francis-HP-Laptop-15-da0xxx: ~/var-som-mx6-yocto-fido/build_x11

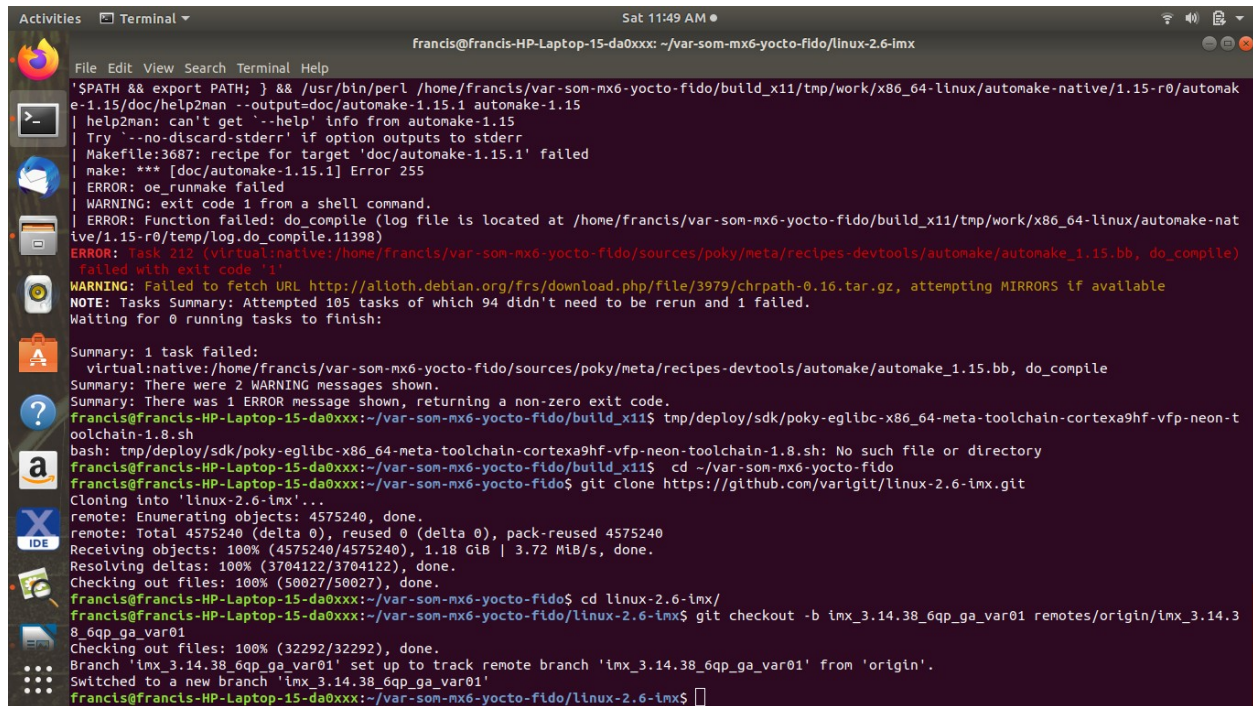
File Edit View Search Terminal Help
meta-variscite-mx6 = "lnx_3.14.38_6qp-var02:0ece0f9c09eb9f37f76bf922991e1859e36e5113"

NOTE: Preparing RunQueue
NOTE: Executing SetScene Tasks
NOTE: Executing RunQueue Tasks
WARNING: Checksum failure encountered with download of http://www.bzip.org/1.0.6/bzip2-1.0.6.tar.gz - will attempt other sources if available
WARNING: Renaming /home/francis/var-som-mx6-yocto-fido/downloads/bzip2-1.0.6.tar.gz to /home/francis/var-som-mx6-yocto-fido/downloads/bzip2-1.0.6.tar.gz_bad-checksum_e91934f212d3235f4e031e19b650440f
ERROR: Function failed: do_compile (log file is located at /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/tmp/log.do_compile.3807)
ERROR: Logfile of failure stored in: /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/tmp/log.do_compile.3807
Log data follows:
| DEBUG: Executing shell function do_compile
| NOTE: make -j 8
| : && /bin/mkdir -p doc && { PATH="/home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/build/t/wrap:
| $PATH && export PATH; } && /usr/bin/perl /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/automak
e-1.15/doc/help2man --output=doc/automake-1.15.1 automake-1.15
| help2man: can't get '--help' info from automake-1.15
| Try '--no-discard-stderr' if option outputs to stderr
| Makefile:3687: recipe for target 'doc/automake-1.15.1' failed
| make: *** [doc/automake-1.15.1] Error 255
| ERROR: oe_runmake failed
| WARNING: exit code 1 from a shell command.
| ERROR: Function failed: do_compile (log file is located at /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/tmp/log.do_compile.3807)
ERROR: Task 164 (virtual:native:/home/francis/var-som-mx6-yocto-fido/sources/poky/meta/recipes-devtools/automake/automake_1.15.bb, do_compile)
failed with exit code '1'
WARNING: Failed to fetch URL ftp://ftp.astron.com/pub/file/file-5.22.tar.gz, attempting MIRRORS if available
NOTE: Tasks Summary: Attempted 119 tasks of which 95 didn't need to be rerun and 1 failed.
Waiting for 0 running tasks to finish:

Summary: 1 task failed:
virtual:native:/home/francis/var-som-mx6-yocto-fido/sources/poky/meta/recipes-devtools/automake/automake_1.15.bb, do_compile
Summary: There were 4 WARNING messages shown.
Summary: There was 1 ERROR message shown, returning a non-zero exit code.
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/build_x11$
```

Process finished with some errors with the docompile file.

BUILDING LINUX OUT OF YOCTO TREE



```
francis@francis-HP-Laptop-15-da0xxx: ~/var-som-mx6-yocto-fido/linux-2.6-imx
$PATH && export PATH; } && /usr/bin/perl /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/automake-native/1.15/doc/help2man --output=doc/automake-1.15.1 automake-1.15
| help2man: can't get '--help' info from automake-1.15
| Try '--no-discard-stderr' if option outputs to stderr
| Makefile:3687: recipe for target 'doc/automake-1.15.1' failed
| make: *** [doc/automake-1.15.1] Error 255
| ERROR: oe_runmake failed
| WARNING: exit code 1 from a shell command.
| ERROR: Function failed: do_compile (log file is located at /home/francis/var-som-mx6-yocto-fido/build_x11/tmp/work/x86_64-linux/automake-native/1.15-r0/temp/log.do_compile.11398)
ERROR: Task 212 (virtual:native:/home/francis/var-som-mx6-yocto-fido/sources/poky/meta/recipes-devtools/automake/automake_1.15.bb, do_compile) failed with exit code '1'
WARNING: Failed to fetch URL http://alloth.debian.org/frs/download.php/file/3979/chrpath-0.16.tar.gz, attempting MIRRORS if available
NOTE: Tasks Summary: Attempted 105 tasks of which 94 didn't need to be rerun and 1 failed.
Waiting for 0 running tasks to finish:

Summary: 1 task failed:
  virtual:native:/home/francis/var-som-mx6-yocto-fido/sources/poky/meta/recipes-devtools/automake/automake_1.15.bb, do_compile
Summary: There were 2 WARNING messages shown.
Summary: There was 1 ERROR message shown, returning a non-zero exit code.
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/build_x11$ tmp/deploy/sdk/poky-eglibc-x86_64-meta-toolchain-cortexa9hf-vfp-neon-toolchain-1.8.sh
bash: tmp/deploy/sdk/poky-eglibc-x86_64-meta-toolchain-cortexa9hf-vfp-neon-toolchain-1.8.sh: No such file or directory
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/build_x11$ cd ~/var-som-mx6-yocto-fido
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido$ git clone https://github.com/varigitt/linux-2.6-imx.git
Cloning into 'linux-2.6-imx'...
remote: Enumerating objects: 4575240, done.
remote: Total 4575240 (delta 0), reused 0 (delta 0), pack-reused 4575240
Receiving objects: 100% (4575240/4575240), 1.18 GiB | 3.72 MiB/s, done.
Resolving deltas: 100% (3704122/3704122), done.
Checking out files: 100% (50027/50027), done.
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido$ cd linux-2.6-imx/
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/linux-2.6-imx$ git checkout -b imx_3.14.38_6qp_ga_var01 remotes/origin/imx_3.14.38_6qp_ga_var01
Checking out files: 100% (32292/32292), done.
Branch 'imx_3.14.38_6qp_ga_var01' set up to track remote branch 'imx_3.14.38_6qp_ga_var01' from 'origin'.
Switched to a new branch 'imx_3.14.38_6qp_ga_var01'
francis@francis-HP-Laptop-15-da0xxx:~/var-som-mx6-yocto-fido/linux-2.6-imx$
```


INSTALLING AND CONFIGURING QT CREATOR

A screenshot of a Linux terminal window on a laptop. The terminal shows the command 'sudo apt-get install qtcreator' being executed. The output lists various additional packages that will be installed, including clang, libbotan, libclang, libbfg, libbsoncpp, libobjc, libomp, libqbscore, libqbsqtprofilesetup, libqt5concurrent, libqt5designer5, libqt5designercomponents5, libqt5help5, libqt5positioning5, libqt5qml5, libqt5quick5, libqt5quicktest5, libqt5quickwidgets5, libqt5script5, libqt5sensors5, libqt5sql5, libqt5sql5-sqlite, libqt5test5, libqt5webchannel5, libqt5webkit5, libqt5xml5, libqt5xmlpatterns5, libtsp1, llvm-6.0, llvm-6.0-runtime, qbs-common, qml-module-qtgraphicaleffects, qml-module-qtqml-models2, qml-module-qtquick-controls, qml-module-qtquick-layouts, qml-module-qtquick-window2, qml-module-qtquick2, qmlscene, qt3d5-doc, qt5-assistant, qt5-doc, qt5-qmltooling-plugins, qtbase5-dev-tools, qtbase5-doc, qtcharts5-doc, qtchooser, qtconnectivity5-doc, qtcreator-data, qtcreator-doc, qtdeclarative5-dev-tools, qtdeclarative5-doc, qtgraphicaleffects5-doc, qtlocation5-doc, qtmultimedia5-doc, qtquickcontrols2-5-doc, qtquickcontrols5-doc, qtscrip5-doc, qtsensors5-doc, qtserialport5-doc, qtsvg5-doc, qttools5-dev-tools, qttools5-doc, qtwayland5-doc, qtwebchannel5-doc, qtwebengine5-doc, qtwebkit5-doc, qtwebkit5-examples-doc, qtwebsockets5-doc, qtwebview5-doc, qtx11extras5-doc, qtxmlpatterns5-dev-tools, and qtxmlpatterns5-doc. It also lists suggested packages: gnustep, gnustep-devel, clang-6.0-doc, libomp-doc, llvm-6.0-doc, qtbase5-dev, cmake, and kate-data. Finally, it lists new packages to be installed: clang, libbotan, libclang, libbfg, libbsoncpp, libobjc, libomp, libqbscore, libqbsqtprofilesetup, libqt5concurrent, libqt5designer5, libqt5designercomponents5, libqt5help5, libqt5positioning5, libqt5qml5, libqt5quick5, libqt5quicktest5, libqt5quickwidgets5, libqt5script5, libqt5sensors5, libqt5sql5, libqt5sql5-sqlite, libqt5test5, libqt5webchannel5, libqt5webkit5, libqt5xml5, libqt5xmlpatterns5, libtsp1, llvm-6.0, llvm-6.0-runtime, qbs-common, qml-module-qtgraphicaleffects, qml-module-qtqml-models2, qml-module-qtquick-controls, qml-module-qtquick-layouts, qml-module-qtquick-window2, qml-module-qtquick2, qmlscene, qt3d5-doc, qt5-assistant, qt5-doc, qt5-qmltooling-plugins, qtbase5-dev-tools, qtbase5-doc, qtcharts5-doc, qtchooser, qtconnectivity5-doc, qtcreator-data, qtcreator-doc, qtdeclarative5-dev-tools, qtdeclarative5-doc, qtgraphicaleffects5-doc, qtlocation5-doc, qtmultimedia5-doc, qtquickcontrols2-5-doc, qtquickcontrols5-doc, qtscrip5-doc, qtsensors5-doc, qtserialport5-doc, qtsvg5-doc, qttools5-dev-tools, qttools5-doc, qtwayland5-doc, qtwebchannel5-doc, qtwebengine5-doc, qtwebkit5-doc, qtwebkit5-examples-doc, qtwebsockets5-doc, qtwebview5-doc, qtx11extras5-doc, qtxmlpatterns5-dev-tools, and qtxmlpatterns5-doc.

