Project plan documentation

Accelerometers

<http://www.pcb.com/products/productfinder.aspx?tx=15>

Embedded System for wireless sensor networks

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6177670>

Condition Monitoring of Wind Turbines

<https://ac.els-cdn.com/S1364032107001098/1-s2.0-S1364032107001098-main.pdf?_tid=e6971b77-3198-4381-a0dc-8329f65ddcaf&acdnat=1525541054_874a239d8e8e7cd4a30a3c110bfe83bc>

IoT in homes

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6516934>

SlamStick

<http://info.mide.com/hubfs/slam-stick-vibration-data-loggers-datasheet.pdf?hsCtaTracking=c32024f3-178f-4f3b-bbf1-6ec4d131432f%7Cbba56a47-81d6-4103-a678-76dc75b24772>

£20 accelerometer

<https://www.mouser.co.uk/datasheet/2/418/NG_DS_3058A_Accelerometer_A1-1130495.pdf>

Distributed Embedded CBM

<https://ac.els-cdn.com/S0920548912001109/1-s2.0-S0920548912001109-main.pdf?_tid=61e656fe-b28a-4d59-9889-5f41514d5daf&acdnat=1525542909_c17bcd3af7e51f68490d5f7120a66ba2>

Wavelet Analysis for gear vibration monitoring (MCSA)

<https://ac.els-cdn.com/S0888327004001128/1-s2.0-S0888327004001128-main.pdf?_tid=af182561-e4a9-4ffd-aabc-a8a232414a28&acdnat=1525542994_5643af3163f3c855a07ce2aa36ec242e>

Similar work performed for wirelessly detecting chatter on machine tools

<https://opensourceoceanweatherbuoy.files.wordpress.com/2016/02/mae-298_final-project-report1.pdf>

Output data rate 2kHz

<https://www.murata.com/~/media/webrenewal/products/sensor/accel/sca800/sca820-d04_accelerometer_datasheet_82%20700%2000%20d.ashx>

Evaluation board ADXL1002 – linear response from DC to 11kHz

<http://www.analog.com/en/products/sensors-mems/accelerometers/ADXL1002.html#product-overview>

Cheaper MEMS to 1.6kHz only

<http://www.analog.com/en/products/sensors-mems/accelerometers/adxl316.html#product-overview>

Max Output Data Rate 800Hz

<https://uk.rs-online.com/web/p/products/8016876/?grossPrice=Y&cm_mmc=UK-PLA-DS3A-_-google-_-PLA_UK_EN_Semiconductors-_-Sensor_Ics%7CAccelerometer_Ics-_-PRODUCT+GROUP&matchtype=&gclid=EAIaIQobChMI44KMqszz2gIVAxbTCh2Ipw7cEAQYAyABEgLjtPD_BwE&gclsrc=aw.ds>

Application Note on DFT and FFT for embedded microcontrollers

<https://www.nxp.com/docs/en/application-note/AN4315.pdf>

Useful NXP Discussion

<https://community.nxp.com/thread/391923>

Flat response to 15 kHz piezoelectric

<https://uk.rs-online.com/web/p/accelerometer-ics/8937266/>

Freescale FFT implementation

<https://www.nxp.com/docs/en/application-note/AN4255.pdf>

Complicated MCSA

<https://ftp.phmsociety.org/sites/phmsociety.org/files/phm_submission/2013/ijphm_13_030.pdf>

IoT MCSA/CBM

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8124386>

MCSA CBM (PhD)

<https://pdfs.semanticscholar.org/b58c/b39c623f060e3eb86d06854acaa02db6edb0.pdf>

Bearing faults – Vibration vs MCSA

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7409240>

Vendors

<http://www.ni.com/white-paper/52461/en/>

Big table of CMSs for Wind Turbines

<http://dro.dur.ac.uk/12497/1/12497.pdf?DDD10+ttsd23+dul4eg>

Embedded CBM for drill, PCB piezoelectric accelerometer 10kHz range, Endevco to 15kHz with NI module (£1700) used for verification, placement of sensors is important

<https://link.springer.com/content/pdf/10.1007%2Fs00170-017-1251-8.pdf>

Comparison of communication protocols

<http://www.diagnostyka.net.pl/,86409,0,2.html>

Justification for CMS

<https://ac.els-cdn.com/S0960148109004704/1-s2.0-S0960148109004704-main.pdf?_tid=8bd46fe9-a69a-4262-b5a2-8f24f81d12fe&acdnat=1525780991_97b55518d6120f005f344fa788bd34af>

MPU6050 could be surprisingly useful

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8278482>

MSP432 Launchpad (Possible board) – ordered one

<http://uk.farnell.com/texas-instruments/msp-exp432p401r/dev-board-msp432-performance-launchpad/dp/2473128?mckv=73kNSYYh_dc|pcrid|78108290469|&gross_price=true&CATCI=aud-294759717834:pla-77217964501&CAAGID=14983481469&CMP=KNC-GUK-GEN-SHOPPING-TEXAS_INSTRUMENTS&CAGPSPN=pla&gclid=EAIaIQobChMIzYSqwo322gIV7ZXtCh0aqgBSEAQYASABEgJLU_D_BwE&CAWELAID=120173390000555085>

FFT Library

<http://www.kurims.kyoto-u.ac.jp/~ooura/fft.html>

FFT Library 2

<https://sourceforge.net/projects/kissfft/?source=typ_redirect>

Arduino SD Card expander

<https://www.gearbest.com/other-accessories/pp_218078.html?currency=GBP&vip=4444261&gclid=EAIaIQobChMIv4qO2K742gIVh7TtCh0_3AxGEAQYASABEgIvEPD_BwE>

Arduino LCD screen

<https://www.gearbest.com/other-accessories/pp_216639.html?wid=1433363>

LCD code convert from Arduino to MSP432

<https://forum.43oh.com/topic/8859-connecting-msp432-to-1602-lcd-via-i2c/>

Standards for condition monitoring

<https://www.iso.org/committee/51538/x/catalogue/>

SD Card MSP432

<https://e2e.ti.com/support/microcontrollers/msp430/f/166/t/637416?MSP432P401R-Official-Library-support-for-SD-card-with-MSP432-launchpad>

SD Card in Arduino

<https://rydepier.wordpress.com/2015/08/07/using-an-sd-card-reader-to-store-and-retrieve-data-with-arduino/>

Useful references here for investigation:

<https://www.emeraldinsight.com/doi/pdfplus/10.1108/SR-05-2013-675>

Wireless Sensor Node Implementation

[www.mdpi.com/1424-8220/17/3/469/pdf](http://www.mdpi.com/1424-8220/17/3/469/pdf)

Current Transuducer, using terminals??

<http://uk.farnell.com/lem/lts-25-np/current-transducer-25a-pcb/dp/1617410?MER=mktBestSellerB>

Current Transducers using hole??

[**http://uk.farnell.com/lem/ho-180-p-0100/current-sensor-180a-voltage-o/dp/2664231**](http://uk.farnell.com/lem/ho-180-p-0100/current-sensor-180a-voltage-o/dp/2664231)

MCSA Case Studies

<https://pdfs.semanticscholar.org/7af1/964ffb69b942ed4efdd2674f2e332d79a77d.pdf>

MCSA Tutorial

<https://resenv.media.mit.edu/classarchive/MAS961/readings/InductionMotorsSignature.pdf>

Simple current transducer

<http://files.panucatt.com/datasheets/cs45al_datasheet.pdf>

Texas Instrument ADC Implementation

<http://www.ti.com/lit/an/slaa735a/slaa735a.pdf>

Texas Instrument High Precision ADC

<http://www.ti.com/microcontrollers/simplelink-mcus/wired-mcus/overview/msp432p4.html#highprecision>

Precision ADC Application Note (Up to 1 MSPS)

<http://www.ti.com/lit/an/slaa821/slaa821.pdf>

Converting float to 4 bytes

<https://os.mbed.com/forum/helloworld/topic/2053/>

Fixed point FFT errors

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=1162875>