Database surface electromyography (SEMG) for lower limb analysis

Abstract: This database contains samples from 11 subjects with knee Abnormality previously diagnosed by a professional and 11 normally. These data were collected with electromyography and goniometry equipment MWX8 Datalog Biometrics.

Característica de la base de datos	Time Series	**Number of samples**	22	**Area**	Señales físicas
Atributes	Real	**Number of attributes**	5	**Sampling date**	July 2012 March 2013 July 2013

1. **Sources:**
   Batallón de sanidad (BASAN) con apoyo de la Universidad Militar Nueva Granada – Bogotá (samples July 2012).
   Carrera 7 No 52-48, Bogotá.
   TecnoParque SENA nodo Manizales (samples march - july 2013).
   Km 10 route to Magdalena, Manizales.

2. **Information database:**

   2.1. Protocol:
   22 male subjects , 11 with different knee abnormalities previously diagnosed by a professional. They undergo three movements to analyze the behavior associated with the knee muscle , gait , leg extension from a sitting position , and flexion of the leg up. The acquisition process was conducted with 4 electrodes (Vastus Medialis , semitendinosus , biceps femoris and rectus femoris) and the goniometer in the knee .

   2.2. Instrumentation
   Datalog equipment was used MWX8 by Biometrics of 8 digital channels and 4 analog channels , of which 4 for sampling were used SEMG and 1 for goniometry, these data were acquired directly to the computer MWX8 internal storage with microSD card and transmitted in Real-time Datalog software through bluetooth adapter , 14-bit resolution and sampling frequency of 1000Hz .

   2.3. Data configuration:
   The total number of electrodes is 4, corresponding to the time series one for each channel (1 to 4). Each series contains ~ 5 shares or motion repetitions for each subject.

3. **Attributes of information**
   Each data file contains 5 columns , organized as follows.

Segment	Lower Limb				
Channel	Ch1	Ch2	Ch3	Ch4	Ch5

Muscle	RF	BF	VM	ST	FX
Column	0	1	2	3	4

Segment: defines the body part where the data are taken.
Channel: corresponds to the electrode attached to a muscle.
Muscle: corresponds to the muscle being measured.

RF: Recto Femoral.
BF: Femoral Biceps.
VM: Vastus Medialis.
ST: Semitendinosus.
FX: Flexion at the knee.

Headings:

File Name: 2Nsen.log
Channel 1: 'RF', 15300 values, engineering units: mV, no filters.
Channel 2: 'BF', 15300 values, engineering units: mV, no filters.
Channel 3: 'VM', 15300 values, engineering units: mV, no filters.

Channel 4: 'ST', 15300 values, engineering units: mV, no filters.
Channel 5: 'FX', 765 values, engineering units: deg, no filters, extrapolated from 50 to 1000 samples per second.to 1000 samples per second.

7. Number of classes:

The database contains 22 samples and 11 normal 11 with knee pathology , each subject has 3 different shots , one sitting , one standing and one gait.

8. Otros:

4 folders: A_LOG, A_TXT, N_LOG Y N_TXT .
Folder _log contains data in .log format that can be loaded and analyzed by datalog software by Biometrics.
Folder _txt contains SEMG data in columns and their headers