Sketchlet Tutorial

External Spreadsheets

sketchlet.sf.net

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Spreadsheets

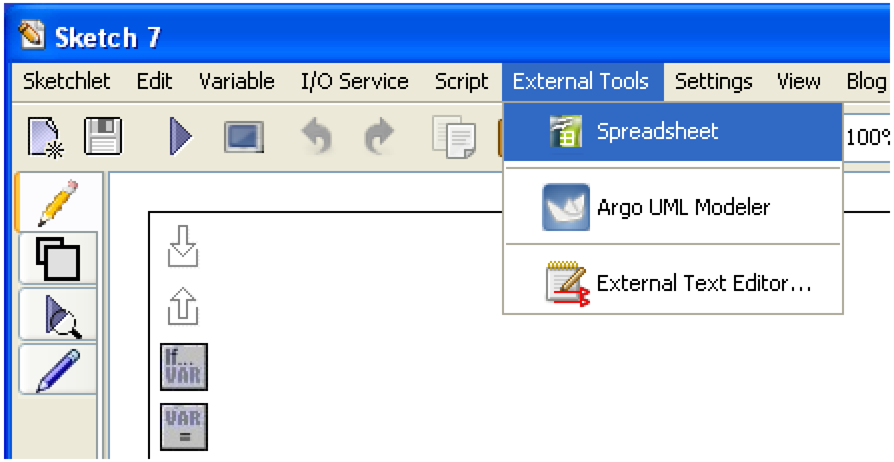
- In Sketchlet spreadsheets can be used to quickly outline the behavior of sketches
- Spreadsheet is proven, highly productive and simple to learn and use end-user development paradigm
- With such tools designers can quickly define more complex interaction scenarios, without requiring intensive programming

Spreadsheets

- We currently support OpenOffice.org CALC spreadsheets
- Spreadsheets were included in Sketchlet by means of add-ins for OpenOffice.org CALC
- From the end-user point of view the add-ons constitute only a few additional functions that are accessible as spreadsheet formulas

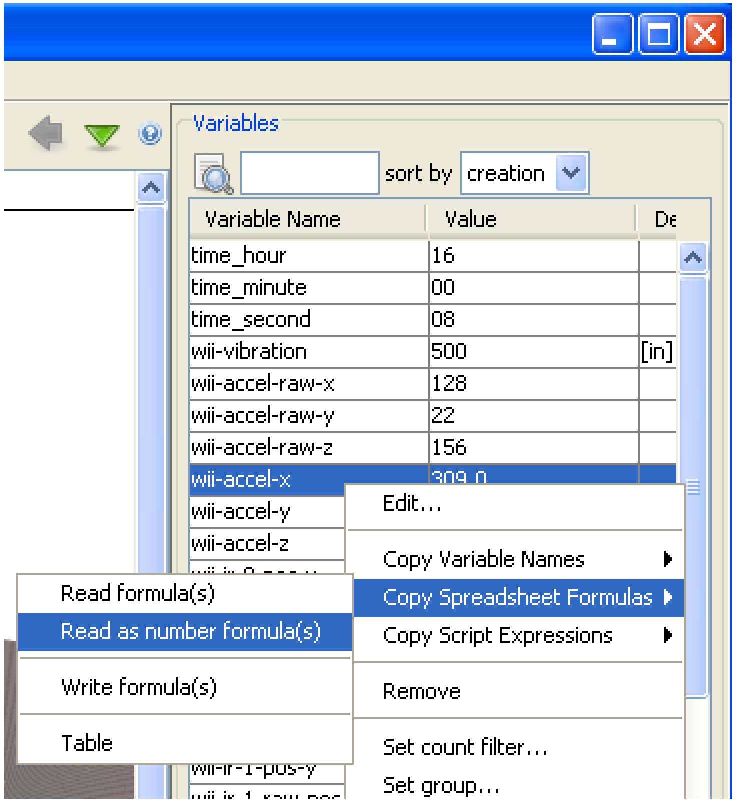
Sketchlet and Spreadsheets

- In “External Tools”



Sketchlet and Spreadsheets

- You can simply copy variables from Sketchlet and paste them in the spreadsheet



Variable Name	Value	De
time_hour	16	
time_minute	00	
time_second	08	
wii-vibration	500	[in]
wii-accel-raw-x	128	
wii-accel-raw-y	22	
wii-accel-raw-z	156	
wii-accel-x	309.0	
wii-accel-y		
wii-accel-z		
wii-ir-1-pos-y		

Examples

- YouTube Video
- YouTube Video

Sketchlet Spreadsheet Functions

- Allow users to update or read all variables of any service connected to Sketchlet
  - expression AMICO_WRITE("spelling";B10) is evaluated every time when cell B10 is updated, and calls the Google spelling checker service (triggered by updating variable “spelling”);
  - expression AMICO_READ("spelling-suggestion") obtains the current value of the variable “spelling-suggestion”, updated by the Google spelling checker adapter

Sketchlet Spreadsheet Functions

- **AMICO_WRITE**(<variable-names>,<values>)
- **AMICO_READ**(<variable-name>)
- **AMICO_WRITE_DELAYED**(<variable-names>, <values>, <delays>)
- **AMICO_READ_LOOP**(<variable>,<cell-or-row>,<cel/row-id>,<start-value>,<end-value>,<step>)

AMICO_WRITE

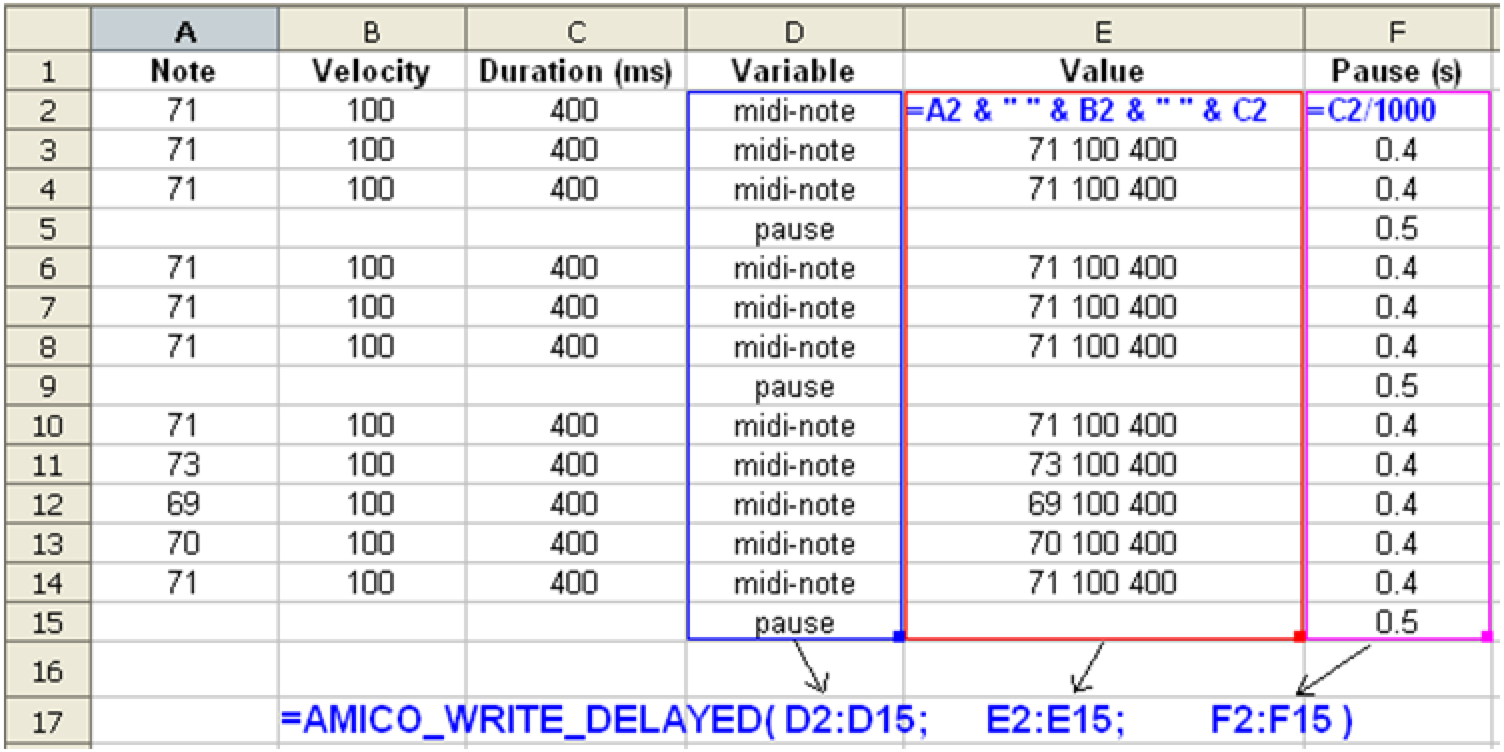
- **AMICO_WRITE**(<variable-names>,<values>)
- Updates AMICO variables with the specified values (returns the same value, or the last value in case a range if cells range is specified).

AMICO_READ

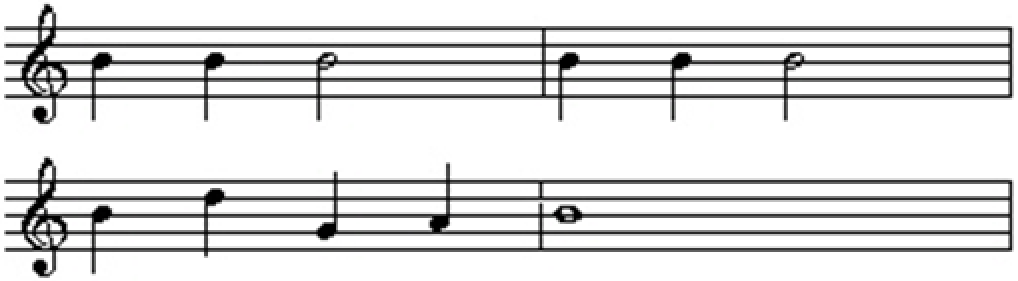
- **AMICO_READ**(<variable-name>)
- Registers for notifications of an AMICO variable with a given name and updates the spreadsheet every time when a new value is received. Our spreadsheet extension creates a thread that listens for notifications of registered variables, and propagates the received values to the spreadsheet formulas that use this value.

AMICO_WRITE_DELAYED

- **AMICO_WRITE_DELAYED**(<variable-names>, <values>, <delays>)
- Updates AMICO variable(s) with given values, after (a) given delay(s). For example, AMICO_WRITE_DELAYED("A", "test", 2.5) will update the variable A with the value "test" after 2.5 seconds. AMICO_WRITE_DELAYED(A1:A10, B1:B10, C1:C10) will update variables with names defined in cells A1 to A10, with values defined in cells B1 to B10, with delays defined in cells C1 to C10 (i.e., the function will first wait for a period defined in C1 and then update a variable with the name defined in cell A1 with the value from cell B1, then it will wait for a period defined in cell C2 before updating variables with the name defined in cell B2, and so on). The function returns the values as they are updated (in our example, it returns B1, B2 ... B10).



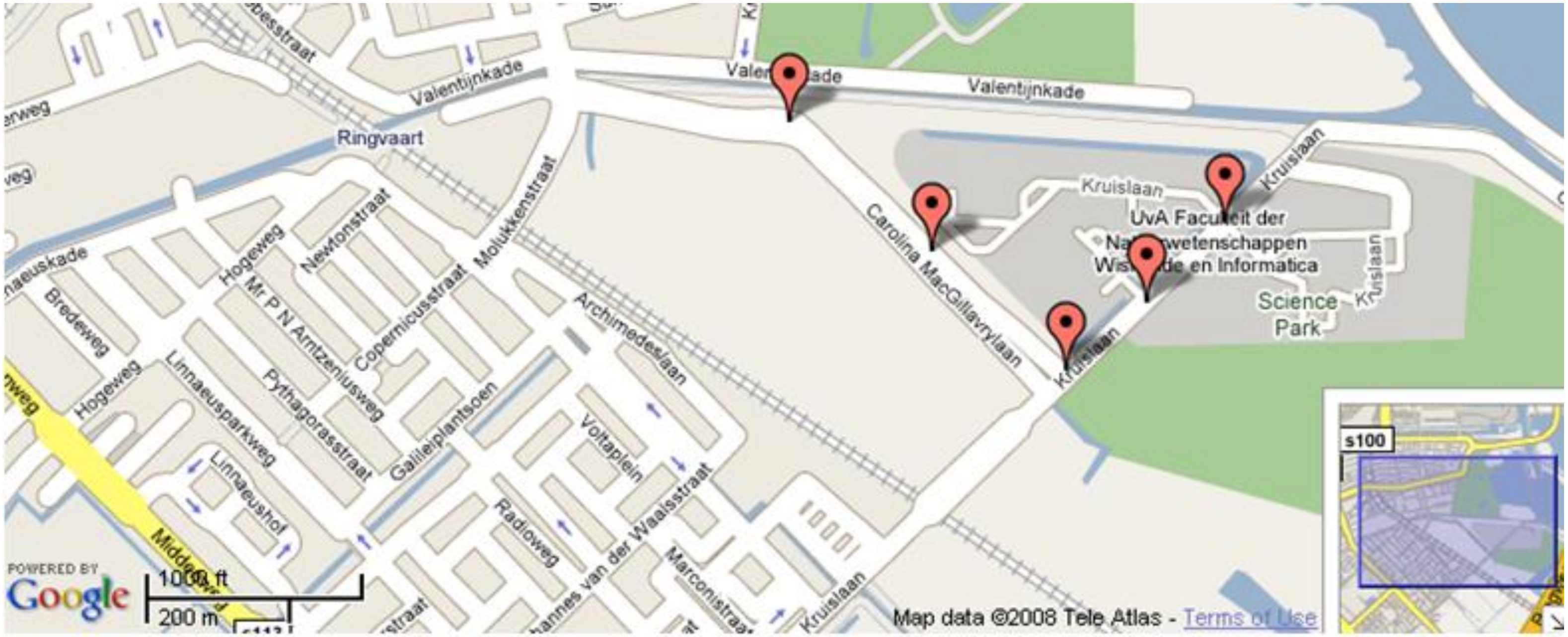
	A	B	C	D	E	F
1	Note	Velocity	Duration (ms)	Variable	Value	Pause (s)
2	71	100	400	midi-note	=A2 & " " & B2 & " " & C2	=C2/1000
3	71	100	400	midi-note	71 100 400	0.4
4	71	100	400	midi-note	71 100 400	0.4
5				pause		0.5
6	71	100	400	midi-note	71 100 400	0.4
7	71	100	400	midi-note	71 100 400	0.4
8	71	100	400	midi-note	71 100 400	0.4
9				pause		0.5
10	71	100	400	midi-note	71 100 400	0.4
11	73	100	400	midi-note	73 100 400	0.4
12	69	100	400	midi-note	69 100 400	0.4
13	70	100	400	midi-note	70 100 400	0.4
14	71	100	400	midi-note	71 100 400	0.4
15				pause		0.5
16						
17		=AMICO_WRITE_DELAYED(D2:D15; E2:E15; F2:F15)				

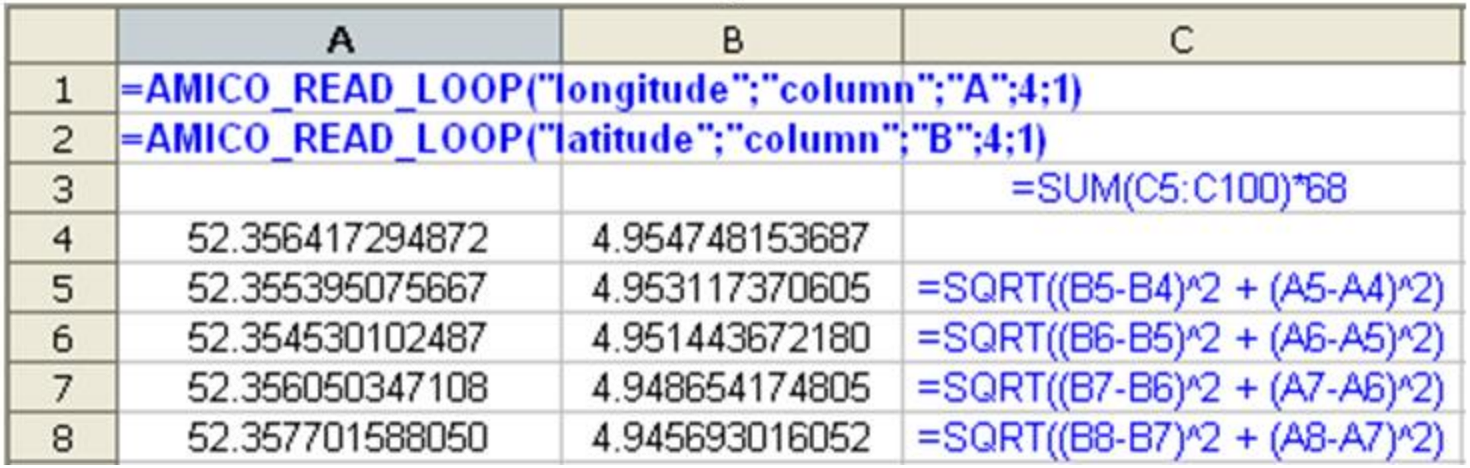


MIDI service (with TCP connection to AMICO)

AMICO_READ_LOOP

- **AMICO_READ_LOOP**(<variable>,<cell-or-row>,<cel/row-id>,<start-value>,<end-value>,<step>)
- Maps sequential updates of an AMICO variable into a spatial update of spreadsheet cells. Updates are performed incrementally within a given row or column, with a given step. For example, AMICO_READ_LOOP("var1", "column", "A", 5, 10, 1), will map updates of variable var1 to a range of cells; the first update will update cell A5, the second update to A6, etc.





	A	B	C
1	=AMICO_READ_LOOP("longitude";"column";"A";4;1)		
2	=AMICO_READ_LOOP("latitude";"column";"B";4;1)		
3			=SUM(C5:C100)*68
4	52.356417294872	4.954748153687	
5	52.355395075667	4.953117370605	=SQRT((B5-B4)^2 + (A5-A4)^2)
6	52.354530102487	4.951443672180	=SQRT((B6-B5)^2 + (A6-A5)^2)
7	52.356050347108	4.948654174805	=SQRT((B7-B6)^2 + (A7-A6)^2)
8	52.357701588050	4.945693016052	=SQRT((B8-B7)^2 + (A8-A7)^2)