

VT Piano

as Live Play Expression of
Velocity and **T**empo

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Introduction

□ Music for everyone ?

- The listening to the music

Everyone like it.

- The composition of music & The playing of instruments

Many beginners want to do so.

But, requirement of advanced level skills or exercises.

□ Digital Computing : MIDI, Sound programming

It helps the beginners to produce music

□ Related Works

- Continuator



(mp4 1' 49")

- Toy Symphony, Creatingmusic.com

- CiP, sfp



(mpeg 0' 45")

What is VT Piano ?

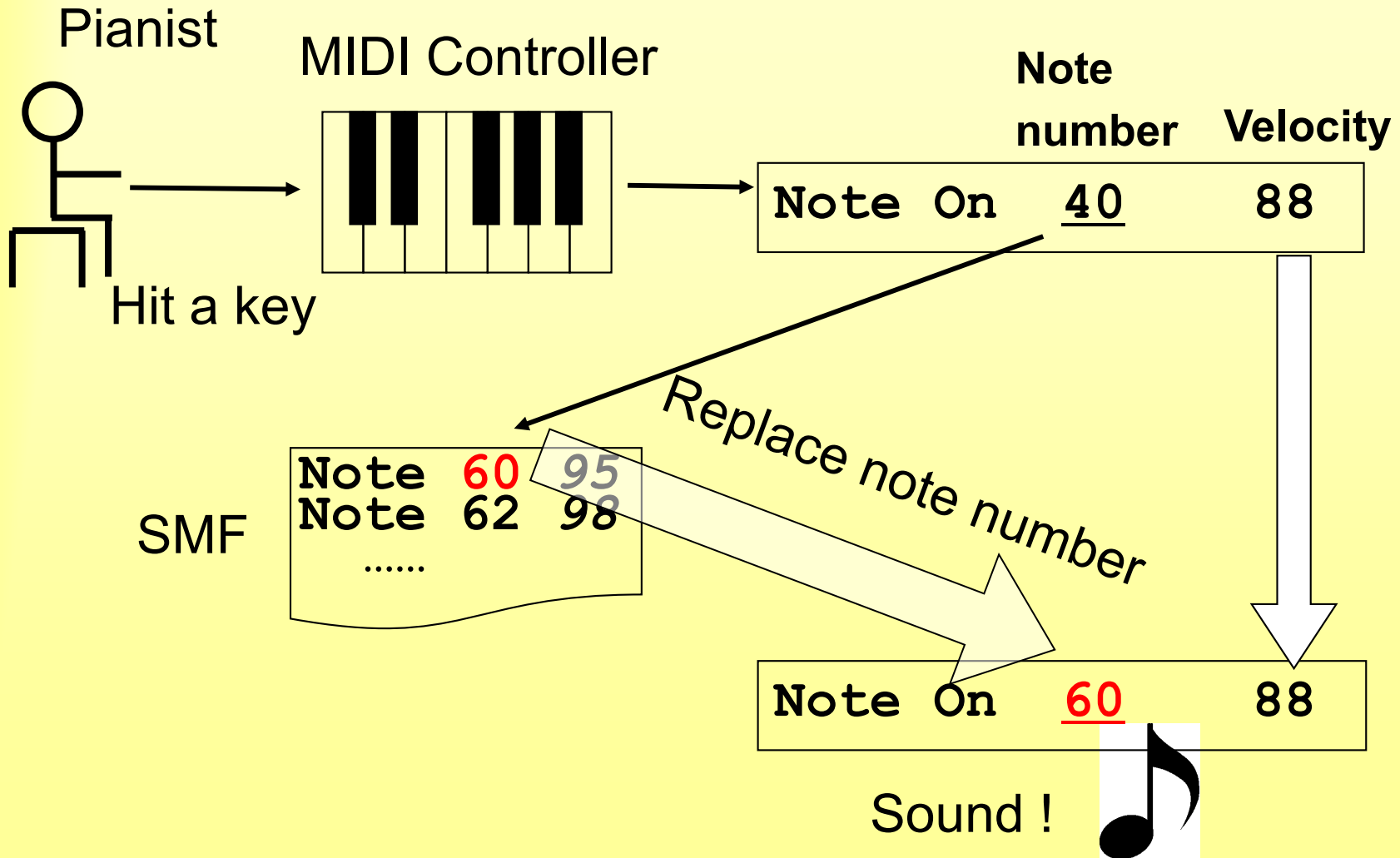
- Abbreviation of “ **Velocity and Tempo Piano** ”
 - Specializing in the expression of the **velocity** and **tempo** by the key touch of the pianist.
 - **Notes** of music are feed into the system in advance.
 - Pianist plays the VT Piano by hitting any key.
 - Pianist can concentrate his attention on the musical expression of volume and timing associated with live playing.

Analysis of Piano Play

Element	Description		Depend on
Note number	Pitch	Which key pushed	Composer
Velocity	Strength	How strong pushed	Pianist
Note on/off	Time	When pushed/released	Pianist



Dynamics of VT Piano



Max main patch of VT Piano

File

Piano Mode

read

Stop

Record

Normal

Auto

VT

write

p tempo

0 1

p control_panel

s autopedal

Note Input from Pianist Live Playing



Control IN

0

0

52

31

Note IN

Control
Value

Control
Number

Note
Number

Velocity

Note Output from MIDI file



Control OUT

0

0

60

26

Note OUT

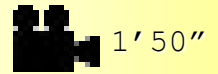
Control
Value

Control
Number

Note
Number

Velocity

Flow of Processing



- 1) Note messages of MIDI sequence are feed to VT Piano.
- 2) When a pianist pushes down any key, MIDI controller makes "Note on" message with a note number and velocity.
- 3) A note message stored in step 1) is called sequentially, and the note number is gotten. And the note number of step 2) is replaced with the note obtained.
- 4) A tone is generated with the pitch made from the note number of step 3) and the velocity of step 2).
Note number is from MIDI sequences of SMF.
Velocity is from a key touch of pianist's live play.
- 5) If a pianist releases off the key of step 2), "Note off" message is issued, and the tone of step 4) is stopped.

Other MIDI Messages

- All MIDI control change messages,

Hold pedal



Modulation, Pitch bend



etc. are obtained from the live playing of a pianist, and they are applied to the sound.

Example of Piano Piece #1

Fantasie-Impromptu

Frédéric CHOPIN
(1810 - 1849)

Allegro agitato

Piano

The image displays two systems of musical notation for Chopin's Fantasie-Impromptu. The first system is marked **sf** (sforzando) and features a bass line with a series of triplets of eighth notes, each triplet beamed together and marked with a '3'. The right hand is silent. The second system is marked **p** (piano) and features a treble line with a series of eighth notes, each note beamed together and marked with a '7', and a bass line with a series of eighth notes, each note beamed together and marked with a '3'. The right hand is silent.

Chords are arpeggios separated to a single tone at a time.
Pianist hits any key with two fingers alternately.



1' 10"

Example of Piano Piece #2

La Campanella
from "Grandes Etudes de Paganini" No.3

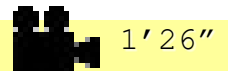
Franz LISZT
(1811-1886)

Allegretto (♩=176)

The image displays a musical score for the piece 'La Campanella' by Franz Liszt. The score is written for piano and includes a vocal line. The tempo is marked 'Allegretto' with a quarter note equal to 176 beats per minute. The key signature is three sharps (F#, C#, G#) and the time signature is 6/8. The piano part is marked 'Piano' and 'p'. The vocal line includes the lyrics 'ma sempre ben marcato il tema'. The score shows two systems of music, each with a piano part and a vocal part. The first system shows the piano part with a 'p' dynamic and the vocal part with the lyrics. The second system shows the piano part with a 'p' dynamic and the vocal part with the lyrics. The score is written in a standard musical notation with a grand staff for the piano and a single staff for the vocal line.

Chords are composed of multiple notes.

Pianist must hit the proper number of keys at a proper time.



Experiments in Exhibition

Atsugi Science Carnival 8' 27"

- Children enjoyed it, though the pieces are classical piano music like Beethoven, Chopin, or Liszt, not really aimed at children.
- Many adults also enjoyed playing them especially for those who have experience in piano playing rather than no experienced at all.
- People can always play a piece of music better if they know it well, because they know when the keys should be hit, and how many keys should be hit at a time.

Conclusion

- In a VT Piano, a pianist can play the piano by hitting any key and can make the musical expression of velocity and tempo.
- It helps to play the difficult piano pieces without losing the musical expression.
- In the near future, we hope that some new instruments will be developed, which are easy to play and express the player's feeling and emotion.