EFFICIENT GYRO-ROLLER BASED REHABILITATION PROGRAM FOR STROKE PATIENTS

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INTRODUCTION

STROKE

- Around *20,000 deaths* in Thailand every year.
- Major cause of paralytic.

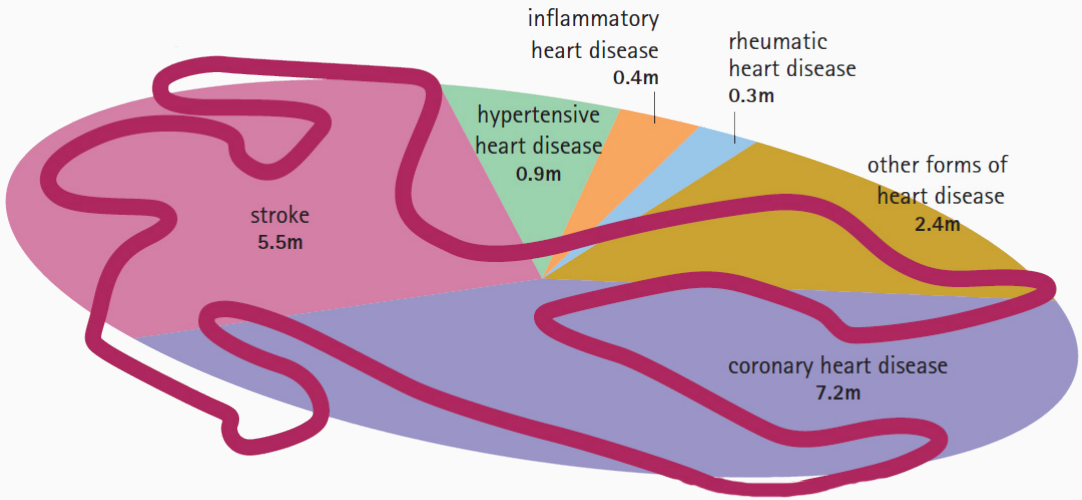

Figure 1: Global deaths from Cardiovascular disease

REHABILITATION

- Neural plasticity
- Most of commercial devices are very expensive
- Strict and repetitive process
- Easy to be motiveless and bored

COMBINATION BETWEEN VIRTUAL REALITY AND REHABILITATION TECHNIQUES

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GYRO-ROLLER

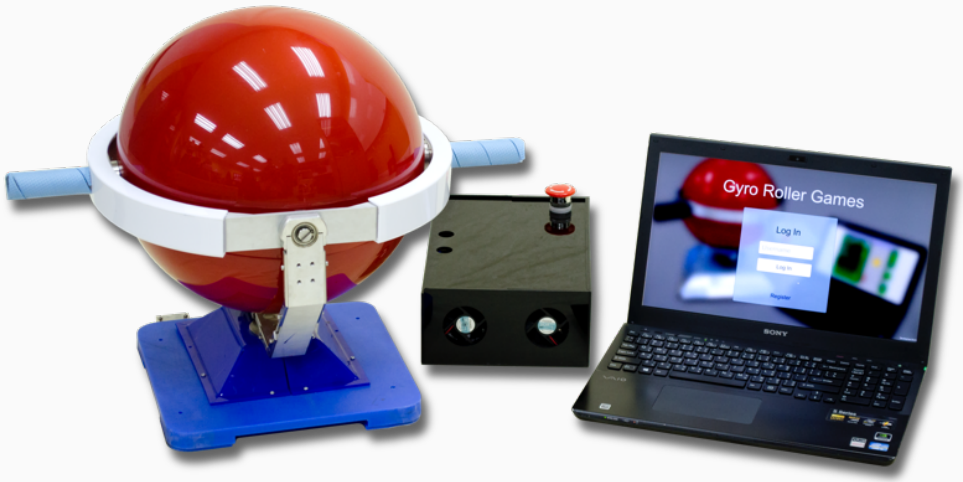


Figure 2: Gyro-Roller System

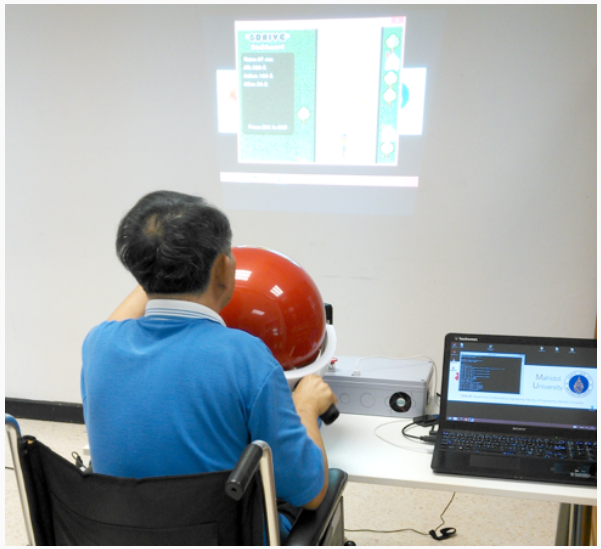


Figure 3: With patients

Difference between 2nd and 3rd version

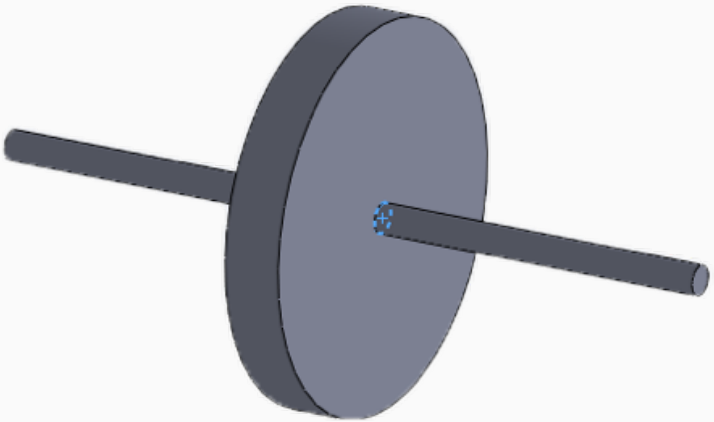


Figure 4: Version 2 wheel

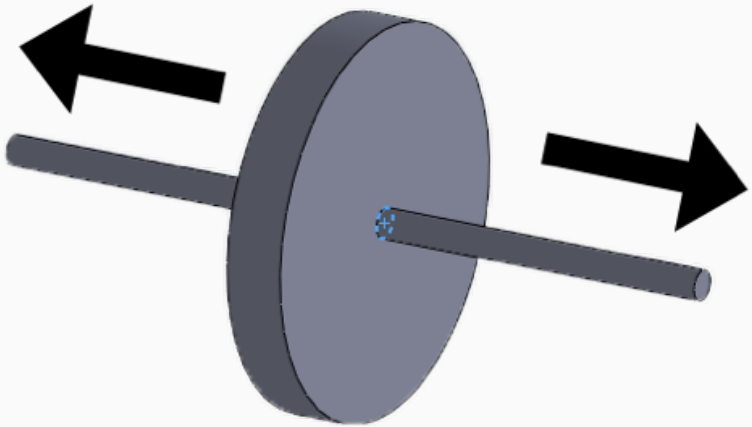
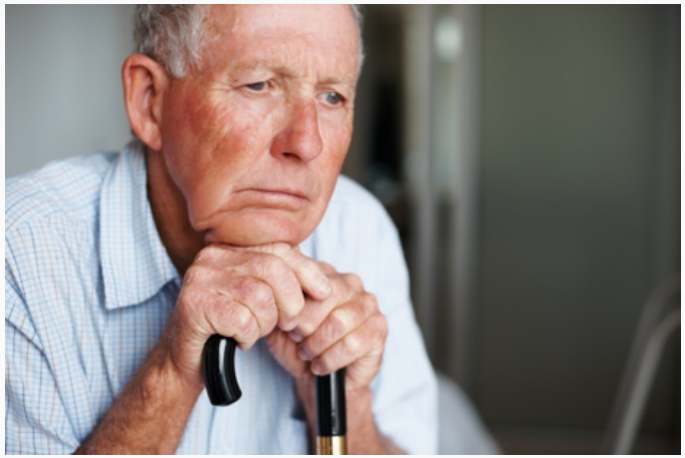


Figure 5: Version 3 wheel

THESIS OBJECTIVES

- Game Design
- Virtual Reality based Gyro-Roller system
- Clinical Trial



THESIS SCOPES

- Develop 3 different games with active & passive modes including several levels and log file.
- Find out how effective of the Gyro-Roller version 3 over version 2.
- Collect the data of 20 subjects for at least 2 months.

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PREVIOUS WORKS

PROBLEM SOLVED

Mechanic

- ~~Fix pulley belt tension~~
- ~~Fix handle bar alignment~~
- ~~Wiring servomotor –> tuning goal position~~

Software

- ~~Write new Arduino sketch to control DC motor~~

Game pages – integrated

- Login
- Registration
- Game Selector
- Calibration – with motor connected
- EMG collection game
- Space shooting game – being integrated

Project source is hosted privately on Bitbucket.org

PRESENT WORKS

Literature Review

- Cognitive rehabilitation

Game Development

- Add mode to control mass movement
- Integrate developed modules
- Create cognitive based games

EMG Analysis

- Figure difference between mass to the left-right
- Apply information to the game

```
The theme provides sensible defaults to
\emph{emphasize} text, \alert{accent} parts
or show \textbf{bold} results.
```

becomes

The theme provides sensible defaults to *emphasize* text, accent parts or show **bold** results.

LISTS

Items

- Milk
- Eggs
- Potatos

Enumerations

1. First,
2. Second and
3. Last.

Descriptions

PowerPoint Meeh.

Beamer Yeeeha.

ANIMATION

- This is important

ANIMATION

- This is important
- Now this

ANIMATION

- This is important
- Now this
- And now this

ANIMATION

- This is really important
- Now this
- And now this

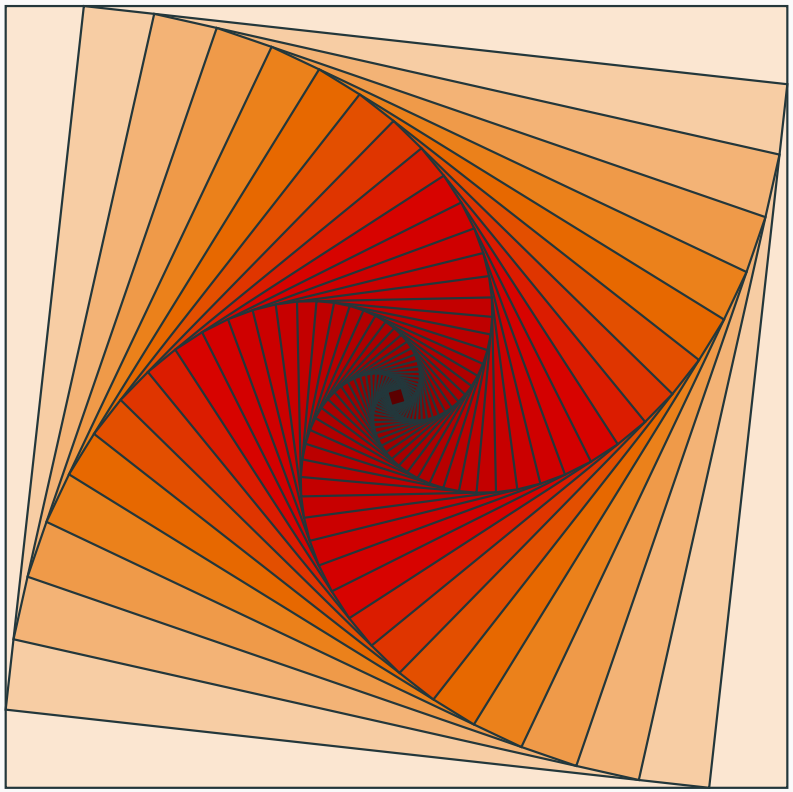

Figure 6: Rotated square from texample.net.

Table 1: Largest cities in the world (source: Wikipedia)

City	Population
Mexico City	20,116,842
Shanghai	19,210,000
Peking	15,796,450
Istanbul	14,160,467

BLOCKS

Three different block environments are pre-defined and may be styled with an optional background color.

Default
Block content.

Alert
Block content.

Example
Block content.

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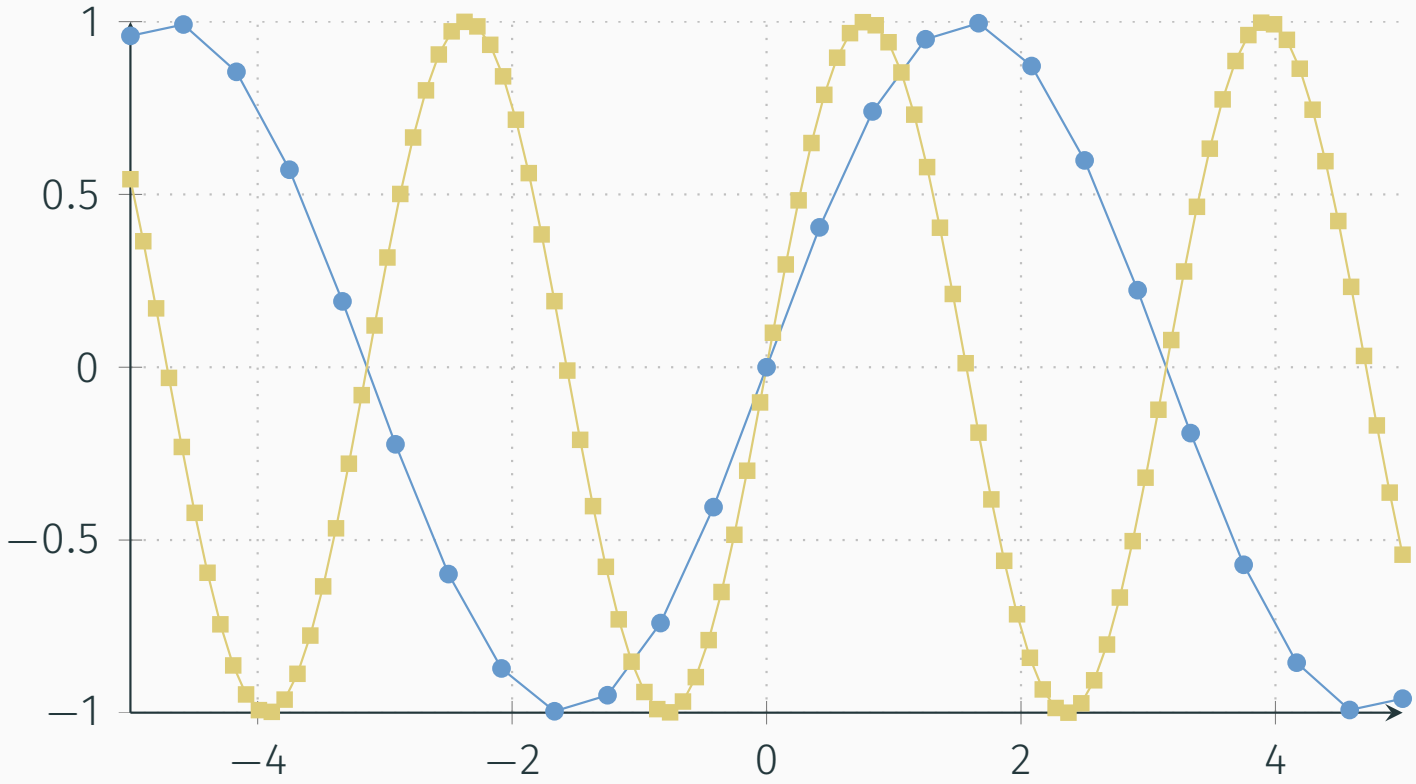
Block content.

Alert
Block content.

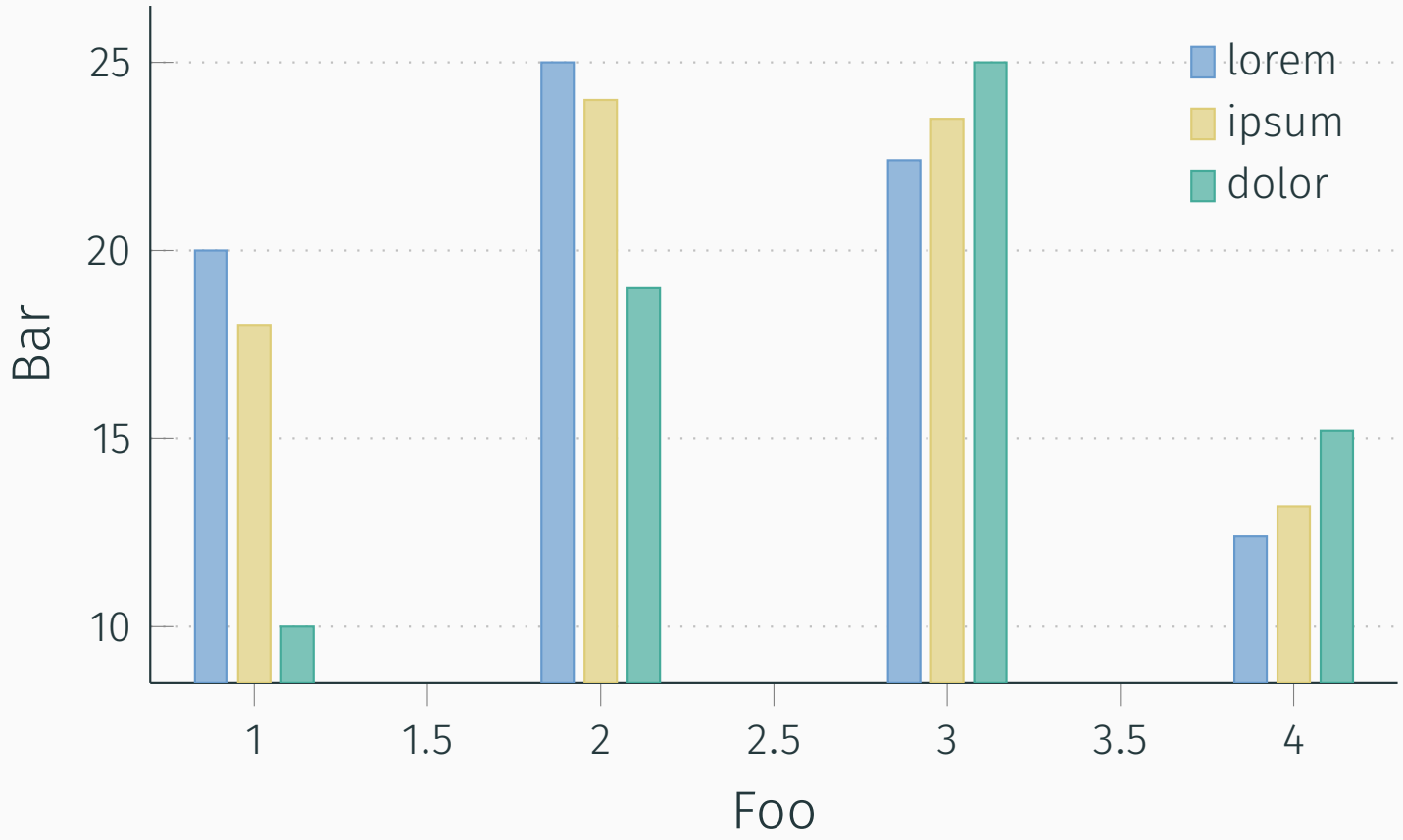
Example
Block content.

$$e = \lim_{n \to \infty} \left(1 + \frac{1}{(n+1)^n}\right)^n$$

LINE PLOTS



BAR CHARTS



QUOTES

Veni, Vidi, Vici

REFERENCES

CONCLUSION

Get the source of this theme and the demo presentation from

`github.com/matze/mtheme`

Questions?

REFERENCES I