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The Computer Association of Thailand Under the Royal Patronage of HM the King

The Interdisciplinary Network of the Royal Institute of Thailand

Under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn

Srisakdi Charmonman Institute of eLearning, Siam Technology College

Srisakdi Charmonman IT Center, Assumption University

The Interdisciplinary Network Foundation for Research and Development

Asia-Pacific eLearning Association, Thailand Chapter of the Internet Society

Thailand Chapter of the Computer Society of the IEEE

Thailand Chapter of the ACM, Thailand Internet Association

Association of Thai Internet Industry, Prof. Srisakdi Charmonman Foundation

Published by Siam Technology Press, Srisakdi Charmonman Institute of eLearning, Siam Technology College



HRH Princess Maha Chakri Sirindhorn Graciously Granted an Opportunity for Prof. Dr. Srisakdi Charmonman to Present a Report on the Presentation of 15 Computers, on the Demonstration of Social Network and Second Life, and on Receiving the Blessed Water for His 72nd Birthday.



HRH Princess Maha Chakri Sirindhorn Graciously Granted an Opportunity for Prof. Dr. Srisakdi Charmonman to Present a Demonstration of about 600 Slides on Social Network and Second Life.



HRH Princess Maha Chakri Sirindhorn Graciously Bestowed upon Prof. Dr. Srisakdi Charmonman the Royal Blessed Water.



HRH Princess Maha Chakri Sirindhorn Graciously Bestowed upon Prof. Dr. Srisakdi Charmonman a Royal Blessed Bale-Fruit Leaf to Put on His Right Ear.



HRH Princess Maha Chakri Sirindhorn Graciously Anointed Prof. Dr. Srisakdi Charmonman's Forehead with Blessed Powder.



HRH Princess Maha Chakri Sirindhorn Graciously Presided over a Group Photograph with Prof. Dr. Srisakdi Charmonman.



International Journal of the Computer, the Internet and Management

Senior Editor-in-Chief : Srisakdi Charmonman

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**Message from
Her Excellency Yingluck Shinawatra
Prime Minister of Thailand**

The 8th International Conference on eLearning for Knowledge-based Society organized in Bangkok definitely contributes to the development of education in Thailand and other countries in ASEAN Economic Community. The theme “eLearning, mLearning, uLearning, and Social Networking” is very appropriate in the sense that learning can now be done in the “e” style or “electronically thru the Internet, in the “m” style or thru mobile phones, in the “u” style or “ubiquitously” or in all ways and means, and thru Social Networking such as with Facebook and Twitter.

The Royal Thai Government recognizes that education is one of the most important factors to the development of our country and for the prosperity of our people. As an example of the recognition, we are adopting “One Tablet Per Child” for our first grade children to allow them to become competitive to those in AEC and the world. It is indeed a great honor for Thailand to host this International Conference on eLearning for Knowledge-based Society which have been going on for eight consecutive years.

May I congratulate the participants of the Conference and members of the Organizing Committee, particularly the Chairman, Prof.Dr. Srisakdi Charmonman, for this very successful event.

A handwritten signature in black ink, which appears to read 'Y. Shinawatra'.

(Yingluck Shinawatra)
Prime Minister of the Kingdom of Thailand



Report to the Chairman of the Opening Ceremony

In my capacity as the Chairman of the Organizing Committee, all members of the Committee would like to express our highest gratitude to H.E. Air Chief Marshal Kamthorn Sindhvananda, Privy Councilor, for the kindness in accepting our invitation to chair the opening ceremony of the Eighth International Conference on eLearning for Knowledge-Based Society. Due to the worst flood in Thailand in the years 2011, this Conference has to be postponed to February 2012.

The main theme of the Conference is “eLearning, mLearning, uLearning, and Social Networking”. The objectives of the Conference are to share knowledge and advances in eLearning, mLearning, uLearning, and Social Networking, to build networks of professionals, researchers, educators and policy-makers practicing eLearning, mLearning, uLearning, and Social Networking, to expand the opportunity for knowledge interchange, to facilitate knowledge-sharing for ongoing initiatives, and to build repositories of current practices and lessons learned.

The Topics of Interest are Best Practices in eLearning, mLearning, uLearning with Social Networking, Technology for eLearning, mLearning, uLearning with Social Networking, Courseware Design and Production with Social Networking, Learning Management Systems with Social Networking, eLearning Principles and Practices with Social Networking, and any other related topics.

This Conference is the eighth one in the series started in the year 2004. The Conferences have been organized by the Computer Association of Thailand under the Royal Patronage of HM the King, The Interdisciplinary Network of the Royal Institute of Thailand under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, Thailand Chapter of the Computer Society of the IEEE, Thailand Chapter of the ACM, Thailand Chapter of the Internet Society, and several other learned societies.

The numbers of papers and countries are 42 papers from 10 countries in the First Conference in the year 2004, 36 papers from 8 countries in the Second Conference in the year 2005, 49 papers from 15 countries in Third Conference in the year 2006, 37 papers from 15 countries in the Fourth Conference in the year 2007, 46 papers from 15 countries in the Fifth Conference in the year 2008, 44 papers from 18 countries in the Sixth Conference in the year 2009, 79 papers from 29 countries in the Seventh Conference in the year 2010, and 94 papers from 22 countries in the Eighth Conference in the year 2012.

We would like to express our sincere appreciation to MK Restaurants Company Limited for sponsoring the Conference and to all the organizations for supporting the Conference.

Again, we would like to express our gratefulness to H.E. Air Chief Marshal Kamthorn Sindhvananda, Privy Councilor, and at this auspicious occasion we would like to invite the Chairman of the Opening Ceremony to deliver the opening address and declare the Conference open.

H.E. Air Chief Marshal Kamthorn Sindhvananda, Privy Councilor, please.

(Prof. Dr. Srisakdi Charmonman)
Chairman of the Organizing Committee



**Opening Address by H.E. Air Chief Marshal Kamthon Sindhvananda,
Privy Councilor**

I am most delighted that the Kingdom of Thailand has once again been honored with hosting the "Eighth International Conference on eLearning for a Knowledge-Based Society." The theme of this year's Conference is "eLearning, mLearning, uLearning and Social Networking."

I would like to offer my heartiest welcome to educators and related professionals who have gathered at Srisakdi Charmonman IT Center of Assumption University Suvarnabhumi campus to share their innovative research and ideas. I am delighted to hear that the numbers of papers and countries represented increase from 94 papers from 22 countries for the seventh conference to 94 papers from 22 countries for the eighth conference and I am confident that many fruitful ideas will emerge to contribute towards the betterment of education for the present and future generations.

The exponential and continuing growth of eLearning and related technologies is influencing educational opportunities for the whole world. The advances of online education are changing the role of universities and civic institutions everywhere. Education is now available for anyone, from anywhere, and at anytime. I, therefore, believe that this Eighth eLearning Conference will be very useful for educators from Thailand and other parts of the world to come together and discuss how eLearning and related technologies can add to the development of knowledge-based economies and enhance other social and cultural dimensions.

I am very excited by the opportunities that the new eLearning and related technologies will provide for the betterment of education at all levels in the world. Through eLearning and related technologies, education is becoming an ongoing and ever-expanding opportunity for people of all ages. The benefits of this vast expansion of opportunities for life-long learning are obvious. Workers will have the skills not only to perform their jobs effectively, but also to take part in the continual development of new economic opportunities for themselves. At the same time, our social and political life will draw critical strength from an increasingly well-educated and informed citizenry.

This Eighth International Conference on eLearning for Knowledge-based Society thus has wide-ranging implications for the world of tomorrow. I therefore would like to declare this Conference open and thank all the supporting organizations and the members of the Organizing Committee led by Prof. Dr. Srisakdi Charmonman for their hard work, as well as thanking all the participants for their significant contributions to the Conference's success.

K. Sindhvananda
**(H.E. Air Chief Marshal Kamthon Sindhvananda)
Privy Councilor**



Welcome Message from the President Emeritus of Assumption University

In my capacity as the President Emeritus of Assumption University of Thailand, I would like to welcome all of you to the 8th International Conference on eLearning for knowledge-Based Society (eLearning 2011) on February 23-24, 2012. We are pleased to be able to tell you about Assumption University. We have the original campus at Huamak, which is primarily the home for our graduate programs. Our new campus opened in June 1999, where our undergraduates attend classes. We call this our university in a park, because of the outstanding architecture with its lush surrounding gardens.

English is the medium of instruction throughout the university. International instructors who hold advanced degrees from many Western institutions bring with them a wealth of multi-cultural experience and training from more than thirty different countries. There is also the opportunity to meet students from over 80 nations who have chosen to attend AU because of its international standards and its management-based curricula. Research, laboratory and resource facilities are plentiful and centrally located.

Information Technology is emphasized on both campuses, and computers are to be found at many locations. Each student is given his/her own account number, and can access the Internet for information at anytime. AU is also a Founding Member of the Internet Society, and Prof. Dr. Srisakdi Charonman is the founding President of Thailand Chapter of the Computer Society of the IEEE, Thailand Chapter of the ACM, and Thailand Chapter of the Internet society. AU is vitally concerned with eLearning, and e-Library. All of these are easily accessible for the students.

It is my pleasure and honor to co-host the Eighth International Conference on eLearning for knowledge-Based Society. Again I would like to welcome you to Eighth International Conference on eLearning for knowledge-Based Society.

Thank you.

A handwritten signature in black ink that reads "P. M. Komolmas".

(Rev. Bro. Prathip Martin Komolmas, FSG., Ph.D.)
President Emeritus



Welcome Message from the President of Assumption University

I am happy to learn that the Computer Association of Thailand continues to organize the 8th International Conference on eLearning for Knowledge-Based Society (eLearning 2011) on February 23-24, 2012. The first decade of the 21st century has gone. We are now in the second decade with advanced technology and complex issues of the time. With academic method of inquiry, in particular research, each research attempts to propose new ideas for consideration and application. At the same time, at this conference, we come together to put our ideas on the table for discussion and to seek the opinions of others so that it can be beneficial to the society and the world at large.

Technology is changing the ways we live and learn. Research in technologies is critical for a knowledge-based society. Also we need to focus on quality of our work. We are at a crossroad in ASEAN. Therefore we need to focus on quality of research and innovation. That is the only way we will have an edge when ASEAN becomes a block in 2015.

The participants at this conference must be applauded for their continued effort and determination to help improve eLearning technologies. At the same time, by coming together at such conference, relationship can be built up and network can be formed to exchange new knowledge in this area.

Let me thank the organizer, Prof. Dr. Srisakdi Charmonman, for organizing this conference. I wish one and all success at this conference and may God bless you all.

A handwritten signature in black ink, which appears to read "Bancha Saenghiran". The signature is written in a cursive style and is enclosed within a thin, hand-drawn oval border.

**(Rev. Bro. Bancha Saenghiran, f.s.g., Ph. D.)
President**



ค้นพบความสุขร่วมกันที่ เอ็มเค

ไม่ว่าจะเป็นความสุขจากเสียงหัวเราะ หรือสุขจากการแบ่งปัน สุขกับกลุ่มเพื่อน สุขกับครอบครัว หรือสุขกับสองคน ที่เอ็มเค เราได้ค้นพบความสุข ด้วยคุณภาพอาหารที่ปลอดภัยได้มาตรฐาน และบริการด้วยรอยยิ้ม จากหัวใจชาวเอ็มเค

MK
RESTAURANTS



Message from the President of Siam Technology College

In my capacity as the President of Siam Technology College, I am most delighted to wholeheartedly support the 8th International Conference on eLearning for Knowledge-Based Society (eLearning 2011) on February 23-24, 2012. The Conference is supported by many learned societies such as Thailand Chapter of the Association for Computing Machinery (ACM) and Thailand Chapter of the Computer Society of the Institute of Electrical and Electronics Engineers (IEEE) which are located at Siam Technology College with Prof. Dr. Srisakdi Charmonman as the Founding President and myself as the President.

Siam Technology College (STC) is a private higher education institution under the Higher Education Commission. STC aim is to provide students with both academic and professional skills to keep pace with rapidly changing technology and desirable qualifications to meet the needs of the labor market.

Most countries are either offering or in the process of preparing to offer eLearning programs. It has been estimated that the global market of eLearning will reach 107 USD billions. In addition to formal eLearning programs at educational institutions, companies are also providing training to their employees through eLearning.

I would like to welcome all participants of the 8th International Conference on eLearning for Knowledge-Based Society and wish that all of you can use the knowledge gained from the Conference to apply for the success of yourself, your organization, and your country.

A handwritten signature in black ink, appearing to read 'Pornphisud'.

Pornphisud Mongkhonvanit

(President of Siam Technology Collage)



Foreword

Eighth International Conference on eLearning for Knowledge-Based Society

For the eighth year in a row, I am very pleased that the International Journal of the Computer, the Internet and Management (IJCIM) has the privilege of publishing Proceeding of the Eighth International Conference on eLearning for Knowledge-Based Society includes 94 papers from 22 countries. To once again devote an entire issue to eLearning is thus an extraordinary opportunity for us.

Sample papers are on Success Stories of Using Social Network in eLearning; Passport to the Digital Nation; Evaluating Usability of Pre-recorded VDOs in eLearning; Envisioning Augmented Reality: Smart Technology for the Future; Preliminary Evaluation of Courseware Production at CIDE; Corporate eLearning Position in Finnish Energy Business - Power Market Perspective; VoicingBoard: Enhancing Multivoiced Construction of Ideas through Manga based Thinking; The Impact of Network Capabilities on Organizational Learning; A Study of Distributed Networks of Practice; Integrating and Teaching Cyber Ethics in eLearning Environment; An Exploratory Study on the Factors Affecting Electronic Word-of-Mouth; Personality and Nature of Internet Use among MMU Students; and The Impact of Training Learners in Efficiently Adopting Dominant Learning Styles to Reinforce Knowledge Acquisition.

In my capacity as the Senior Editor-in -Chief of the International Journal of the Computer, the Internet and Management, I would like to thank those who have made the Eighth International Conference on eLearning for Knowledge-Based Society and its Proceedings possible. The main organizers are the Computer Association of Thailand Under the Royal Patronage of HM the King, The Interdisciplinary Network of the Royal Institute of Thailand Under the Royal Patronage of HRH Princess Maha Chakri Sirindhorn, Srisakdi Charmonman Institute of eLearning of Siam Technology Collage, The Interdisciplinary Network Foundation for Research and Development, Asia-Pacific eLearning Association, Thailand Chapter of the Internet Society, Thailand Chapter of the Computer Society of the IEEE, Thailand Chapter of the ACM, Thailand Internet Association, Association of Thai Internet Industry, Prof. Srisakdi Charmonmam Foundation, and Assumption University. Also crucial has been our sponsoring organizations Siam Technology Collage, and MK Restaurant Company Limited. Finally, I must also thank all the members of the Organizing Committee, as well as the staff of the Office of President Emeritus of Siam technology Collage, staff of Assumption University, and staff of the IJCIM.

(Prof. Dr. Srisakdi Charmonman)
Editor-in-Chief of IJCIM

Srisakdi Charmonman Institute of eLearning, Siam Technology Collage

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Simplify Understanding Physics Lessons for High School with Animation by E-Learning

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Abstract - Physics lessons are lessons that require an understanding that can be proven scientifically / physical. To prove it scientifically we need a clear picture about what happened. Animation is a depiction of objects that seemed to move, with the help of animation, it is expected of school students can better understand the physical phenomena that exist in nature or understand the physics formulas well. Animation to be made using the flash, so it can later on upload to the internet and can be accessed by high school students over with ease. Animation in physics are presented in e-learning will be more easily understood without the presence of a teacher chaperone. This is caused by the visualization of a complete and interesting phenomenon.

Keywords - animation, e-learning, high school, physics lesson

I. INTRODUCTION

In about the year 1530, an Italian scientist, Tartaglia, trying to study the movement of shells fired. Tartaglia experimented by firing cannon balls with different tilt angles. From these experiments, he could only conclude that the cannonball will reach the farthest distance if the angle of the cannon with 45° . However, he can not explain why this could occur.

Answers to questions that arise from new Tartaglia experiment came when Galileo began to develop research on the movement. Galileo claimed without force, an object that

is moving will continue moving at a constant pace. He further stated that the falling objects, speed of object increased regularly. This could explain why the corner is the angle that produces 45° shots farthest. However, the concept of motion generated by Galileo is still very little. The concept of a more complete new movement emerged in 1687 when Isaac Newton published his book Principia.

Basically, the discussion of the motion can be divided into two major parts, namely kinematics and dynamics. Kinematics contains a discussion of the motion of bodies without consideration of the cause of the movement. While the dynamics contains a discussion on the motion of objects with respect to the cause of the movement, namely the force.

Which will be discussed in this paper is motion with move constan (GLB), uniformly accelerated motion, motion bullet (parabolic) which is a combination between GLB and uniformly accelerated motion (GLBB), and collision perfectly resilient

A. Uniform Straight Motion (GLB)

GLB is motion of an object through a straight line and moves with constant speed. An example is the car moving in a straight path with no obstacles and have a constant speed.

B. Uniformly Accelerated Motion (GLBB)

Uniformly accelerated motion (GLBB) is the movement of objects where the velocity will change uniformly, the faster or slower. However, the acceleration of the object is fixed. Some examples of uniformly

accelerated motion is the motion of falling objects and motion of the aircraft when it will take off or when it going to land

Consider an object that is moving uniformly straight with acceleration fixed a. Acceleration a is connected with the initial velocity and the velocity at time t by the equation

$$a = \frac{\Delta v}{\Delta t} = \frac{v-v_0}{t-t_0} \quad (1)$$

with v = velocity at t
 v₀ = start velocity
 t₀ = start time

if t₀ = 0, so from (1) get

$$a = \frac{\Delta v}{\Delta t} = \frac{v-v_0}{t} \text{ or } v = v_0 + at \quad (2)$$

While the distance the object can be calculated by

$$s = v_0t + \frac{1}{2}at^2 \quad (3)$$

C. MOMENTUM

Law of Conservation of Momentum In the event of collisions between two objects that do not involve external forces apply the law of conservation of momentum, which reads: Total momentum of the objects before the collision equals the sum momentum of the objects after the collision.

$$m_1v_1 + m_2v_2 = m_1v_1' + m_2v_2' \quad (4)$$

with v₁, v₂ is velocity before collision and v₁', v₂' is velocity after collision.

Law of conservation of momentum will be used in case of collision perfectly springy, resilient partial collision and collision are not resilient.

Both uniform straight motion, uniformly accelerated motion and momentum will be easier to learn without a teacher chaperone by providing simulated motion of bodies.

II. BASICS OF FLASH

Macromedia Flash is a professional program for creating animated logos, navigation controls, animations, websites, interactive CDs, etc.. This program is very flexible so that only the creativity of the restrictions on what we make.

A. Introduction to Flash

The first display when we open the Macromedia Flash Version 8 is:



Fig. 1 Early Macromedia Flash Picture Display

In general appearance Macromedia Flash 8 application program is divided into 3:

- Toolbox, located next to the far left. Contains icons for creating and manipulating objects.
- Stage, is the work area that will be used to display animations that will be displayed.
- Timeline, is an area where we will set the length of the animation that will be created.

B. Analogy

To facilitate understanding of the program this Macromedia Flash, will try to use analogy in Flash with everyday life. The terms in the Flash program can be analogous to a book. A book consists of several chapters, and each chapter consists of several pages. Likewise in this Flash program, similar to a book, movie or whatever the main program name to be generated by the Flash consisting of several scenes, and each scene consists of several frames are synonymous with the page.

C. Animation

Animation comes from the word animate meaning make something move as if alive. If we draw on a page in the book, then re-create the image on the next page by changing slowly until a few pages, then the image will appear to move when we opened it quickly, this is the principle of animation.

On Macromedia Flash ie there are 4 types of animation: frame by frame animation, motion tweened animation, shape animation and animation with the path.

1. Frame by Frame Animation

In the frame by frame animation, drawing little changed at each frame, so that when played, the image will appear to move. Example: In the frame by frame animation, the image changed a little bit on each frame, so that when played, the image will appear to move.

2. Motion Tween

Motion tween animation used to create animated movements such as the car moves, the ball rolling, and so on.

3. Shape Tween Animation

Shape tween is used to change the shape of an object slowly, for example :

- Open new sheet on macromedia flash
- Draw a box on stage
- Right click on frame 20 and click insert key frame
- Clear picture box in the later stage and later replace with a circles
- Click on frame 30 (or any) and open the Properties panel and change the combo box from none to shape tween. This will bring up an arrow with green background.
- Test the animation by pressing control, play

4. Animation with Path

How to make it ?

- Open new sheet
- Drawing circle on stage
- Click frame 1, then right click and create motion tween
- Click frame to frame 10 such purposes, then right-click and then insert key frames
- Create a guide layer by pressing the button add motion guide
- Draw a line that will be the trajectory of the object. Starting from the initial position of the object until the final position of objects, such as a half circle (parabolic)
- Move object to final line
- Test animation

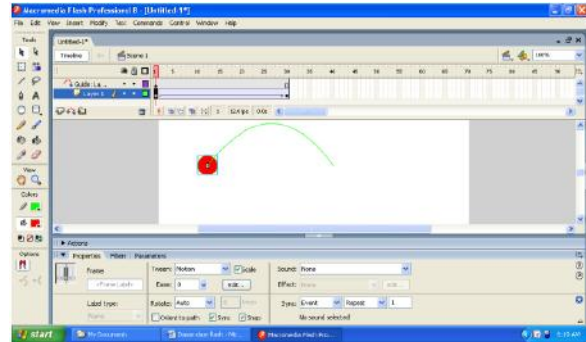


Fig. 2 Example of animation with the path.

III. PHYSIC ANIMATION WITH FLASH

Physics lesson that will be used as an example for the manufacture of animation among other uniform straight motion (GLB), uniformly accelerated motion (GLBB), motion bullet (parabola) and also a perfect collision resilient..

A. Uniform Straight Motion (GLB)

Making animation Rectilinear Regular (GLB) in two ways: the usual way and the way the script

The steps[1]:

- Draw a circle on the stage on frame 1 layer 1
- Right-click on frame 1 layer 1 and then click create motion tween
- Right click on the destination frame (eg frame 50) and then right click, insert frames
- Drag the circle object, place it on the last position of circle you want
- Run by pressing Ctrl + Enter

By script :

- Draw a circle on the stage
- Block the circle and then from the Insert menu and click the Convert to Symbol, a dialog box will appear
- Select Movie Clip and press OK
- Select the MC circle, then right click and select action
- In the action panel type the following script:

```
onClipEvent(enterFrame) {
    _x = _x + 2
}
```

- f. his script will govern the circle movieclip to increase horizontal position at all times. To accelerate the move objects please change the script as follows:

```
onClipEvent(enterFrame) {
    _x = _x + 5
}
```

- g. To change the direction of movement, so please change the script above becomes as follows:

```
onClipEvent(enterFrame) {
    _x = _x - 1
}
```

B. GLBB

Preparation of uniformly accelerated motion animation (uniformly accelerated motion) in two ways: the usual way and the way the script.

The steps are:

- Draw a car on the stage on frame 1 layer 1
- Right-click on frame 1 layer 1 and then click create motion tween
- Right click on the destination frame (eg frame 50) and then right click, insert frames
- Pull the car object, place it on the last position of the desired car
- Click on frame 10 and open the panel and set Easensya propertiesnya. Ease positive would slow motion while the opposite negative ease.
- Run by pressing Ctrl + Enter

By script :

- Draw a car on stage
- Block the car and then from the Insert menu and click the Convert to Symbol, a dialog box will appear
- Select Movie Clip and press OK
- Select the MC car, then right click and select action
- In the action panel type the following script

Draw a car on stage

- Block the car and then from the Insert menu and click the Convert to Symbol, a dialog box will appear
- Select Movie Clip and press OK

- d. Select the MC car, then right click and select action

- e. In the action panel type the following script:

```
onClipEvent(load) {
    a=15;
    t=0;
    v=23;
}
onClipEvent(enterFrame) {
    t++ //t terus bertambah
    _x+=v*t+a*t*t
}
```

- f. Movie clip script above ordered the car to increase its position at any time. To expedite the movement of objects please change the variable v, so the script becomes:

```
onClipEvent(load) {
    a=25;
    t=0;
    v=50;
}
onClipEvent(enterFrame) {
    t++ //t terus bertambah
    _x+=v*t+a*t*t
}
```

- g. To change the direction of movement please change the script above so that it becomes:

```
onClipEvent(load) {
    a=15;
    t=0;
    v=29;
}
onClipEvent(enterFrame) {
    t++ //t terus bertambah
    _y+=v*t+a*t*t
}
onClipEvent(enterFrame) {
    _x = _x - 1
}
```

C. Motion Parabolic

Parabolic motion in principle is the union between GLB and uniformly accelerated motion, a horizontal axis using the GLB while the vertical axis using a uniformly accelerated motion, where the acceleration is the force of gravity.

To make this dish motion animation could use a fourth animation is animated by using the path.

D. Resilience perfect collision

Animation perfect springy collision between two balls. The steps are [1] :

- a. Draw the ball (circle) on the left side of the stage (give red color)
- b. Right click on frame 1 and select create motion tween
- c. Right click on frame 30 and insert keyframe
- d. Pull the ball toward the middle of the stage.
- e. Insert a new layer (layer2) and make a blue colored balls in this layer to the right of the stage.
- f. Right-click on frame1 layer2 select create motion tween.
- g. Right-click on frame20 layer2 then insert a keyframe
- h. Drag the blue ball to the middle of the stage to collide with each other with a red ball.
- i. The next step right click on layer2 frame40 and click insert key frame
- j. Pull back the blue ball to its original position
- k. Perform the same steps for the red ball
- l. Test animation with Ctrl + Enter

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IV. CONCLUSIONS

In this paper has discussed making animation that is used for physics high school students to facilitate their understanding concepts of physics. Among other things straight Regular Motion (GLB), uniformly accelerated motion (GLBB), Motion Parabolic (combined between GLB and GLBB) and also a perfect collision resilient. Hopefully with this animation is easier for them to understand the physics lesson