Basket Ball Mania

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| [Group-05] | [17-11-14] | Instructor name: [S.B.Nair] |

# Getting Started:

Basketball Mania is an interactive game which will give the user a very different and experience of playing basketball. There are many features which will tempt the users to play the game and those features are mentioned and explained in details below.

### Peripherals and Components to be used:

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| * Embedded Application Board | * DC motors |
| * AMGP Sensors | * Lasers and LDR |
| * Bread Board | * Connectors |
| * Battery |  |

### How the Game Looks Like:

The user will move the hand and according to the acceleration of the hand the ball will be released from the cannon (proportional acceleration).If ball passes through basket there will be an increase in the score on LCD of EAB.

# Functioning of Components:

* **PIC Microcontroller**:

A Peripheral Interface Controller microcontroller is a small computer on a single IC containing a processor core, memory, and programmable I/O peripherals. It requires 5V dc as input, which can be provided through USB cable as well as through DC supply.

* **AMGP Sensor:**

The Sensor Card, we are using is, by Brigosha is mounted with the MEMS sensors:

* + 1. Tri-Axis Digital Accelerometer
    2. Tri-Axis Digital Gyroscope
    3. Tri-Axis Digital Magnetometer
    4. Digital Static Pressure Sensor

We are using Accelerometer Sensor that Measures the acceleration of an object which it experiences relative to free fall.

* **LDR Sensor (Light Dependent Resistor):**

The resistance of a photo resistor decreases with increasing incident light intensity. We are using LDR in basket to detect whether ball is passed through basket or not. It will output Analog values and then we are converting these values in digital values to check from how much value intensity of light is affected.

* **DC Motor:**

We are using DC Motor to given acceleration to the ball according to the acceleration of user's hand. We are using pulse-duration modulation (PDM), so different acceleration detected by the sensor will reflect on ball's acceleration.

# Scope of Improvement and Other Options:

1. **Multiplayer Game:** The game can also be played by two players simultaneously. One of them will control the movement of the basket while the other one will try to basket the ball. This way the game will be realistic, entertaining and competitive.
2. **Difficulty Levels:** There will be various levels and the difficulty level will be increased by moving the basket sideways or front and back. Moreover, there will be a cap over the basket which will keep opening and closing, thus increasing the difficulty level of the game.

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