



TEAM CHIRON

Rachata Ausavarungnirun

Wenyan Lu

Kaimin Hu

Carl Vanderlip

CONCEPTS & MOTIVATION

- Existing basketball coaching devices are extremely expensive and only been used in a major basketball league.
- Our group want to create a low-cost coaching device.
- We develop our "Basketball Training Glove" in order to adjust or train the shooter's performance. This project will embed sensors into a glove to measure the shooting angle and shooting force; then, give feedback to the players.



COMPETITIVE ANALYSIS

- NOAH basketball coach training system
- Uses a fixed camera to track the ball.
- Can only give response to the trajectory of the ball along with the "too short" or "too long" response.
- Only tracks shots made from free throw line.
- The training video can be recorded.
- The cost is around \$6,000.

• Image provided by noahbasketball.com



TECHNICAL SPECS

○ Hardware:

- 3-axis accelerometer, serial interface.
- Flex sensors.
- Gumstix with Bluetooth. 400MHz arm with 64MB RAM, 16MB of flash and microSD adapter.
- Buttons for the reset state of the input.
- LEDs for the feedback.
- Glove.
- The software computes the optimal angle, position, orientation and acceleration of the hand. Then gives feedback via the LED.
- Protocol - Bluetooth



REQUIREMENT

- Functional Requirements:
 - Accepting shooter's hand movement via the accelerometer.
 - Accepting the position of your arm with the flex sensors.
 - Computing the acceleration and orientation data with the gumstix and send those data to computer via Bluetooth.
 - The reset button is used once every session of the free throw.
- Timing Requirement:
 - The system should give the result in a minute.
- Reliability:
 - The hardware should be able to handle the contact with the basketball. The system should not fail with the impact from the basketball.
- Portability:
 - The system should be able to operate on the normal basketball court. (i.e. no power cables running to the player)
- Safety:
 - The system should not hurt the player in any means.
(physically or emotionally)

