Concept design of a low-cost chess clock for emerging markets.

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Background information

Digital Game Technology is a small company situated in Enschede which designs and develops products for Chess. They make electronic chessboards, chess pieces and digital chess clocks. They also put an electronic chessboard on the market with a build-in chess computer. The company identified a new customer need for more affordable tournament chess clocks in emerging markets. These tournament chess clocks have to adhere to strict requirements in order to be used in official chess tournaments. Currently consumers in these emerging markets often choose for the cheaper competing chess clocks of lower quality. The challenge lies in designing a concept for a chess clock which adheres to the strict requirements of a tournament chess clock while keeping costs to a minimum. During the assignment ease of production and possible assembly time was also kept in mind.

Approach

A complete design process was followed which resulted in a concept design for a chess clock which is cheaper to produce and assemble than the DGT2010 which is one of the most important clocks for DGT. Even though this particular clock is several years old, it is still a widely accepted industry standard together with the more recent and luxurious DGT3000 clocks.

Figuur 1 DGT 2010

The analysis phase of the assignment consisted of examining chess clocks of DGT and its competitors. Characteristics of DGT products are explored and analysed. Several experts have been contacted and a questionnaire was distributed among them which resulted in new insights. Together

with the official requirements from the governing body of international chess competition for tournament chess clocks a statement of requirements is constructed.

Different visuals and dimensions of the new chess clock have been explored through series of sketches and foam models. The foam models were important because a slight alteration in dimensions of the chess clock can heavily influence how the clock is perceived. It is important for the new clock to be identifiable as official tournament chess clock while also fitting within the current product range of DGT. Possibilities for alternative mechanisms have been thoroughly explored.

Results

The new chess clock is able to be identified as a tournament chess clock similar to the existing chess clocks from DGT. The final concept reduces costs by reducing the total material and number of parts that are to be created by use of injection moulding. These parts are also made simpler to allow cheaper mold design without using slides or inserts. Furthermore a new alternative for the mechanism makes for easier assembly and reduced costs.

Conclusion & Recommendations

The chess market is large and it seems DGT could benefit from the introduction of a low-cost tournament chess clock. The new concept is succesful in the reduction of material costs, ease of production and assembly time.

It is recommended for DGT to review the design and get a price quotation from their existing and alternative moulding manufacturers for an accurate cost calculation and to save on import costs.