

ADVANTAGES

- 1) In conventional method of satellite launching, payload (Satellite load) is much smaller than total weight of launching vehicle. I.e. for 2 tones of satellite, we require 100 tones space vehicle. I.e. 2%.

Here, payload may be up to 95% as initial stage of launching is due to magnetic repulsion. Fuel is require to set satellite in its orbit.

- 2) Fuel loss, also vehicle damage after each launching can be avoided.
- 3) More economical because electricity can be taken from any side of country for some period of time. (By load scheduling if not have sufficient capacity)
- 4) Develop space gun may act as machine gun also i.e. gun which can fire more than one satellite at a time in series. (By keeping proper space between two satellites.)
- 5) Initial cost is only further maintenance is requiring.
- 6) Super conductivity is required for some time, which is possible now a day.
- 7) Percentage of fell ever in space project is much & mostly due to initial stage of launching. This may be avoided here.

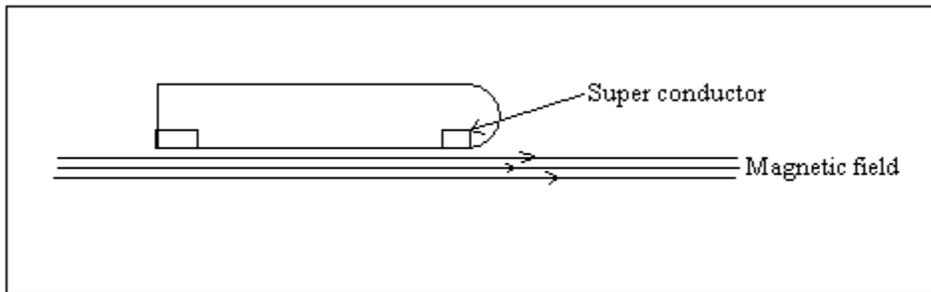
(This is primary view about space gun, we may improve it much as we require.)

SPACE GUN

In school days, I always think about gun , whose barrel is facing towards sky & it fire the space ship like projectile with such speed that it will enter into it's orbit around earth in space smoothly. But this was only the dream. It is impossible in ordinary condition by ordinary gun to fire a space ship with initially requiring too much momentum, which we can't give by single initial explosion.

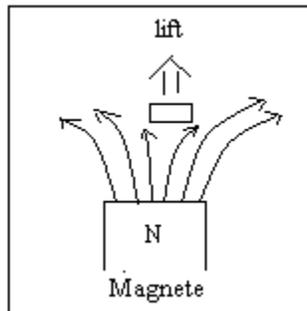
But when I read about superconductor & about its extra ordinary character, like magnetic field repel super conductor (push away). I think that my dream of space gun may comes into existence.

In countries like Japan, France bullet trains are come into existence. In which whole train is lifted up in space over abed of magnetic field.2



By law of nature, whenever we keep super conductor in magnetic field opposite field is formed by superconductor, pushes the super conductor in direction away from field.

This law is used in bullet train.



Now consider, if bullet train is lifted on magnetic bed means friction from rail becomes zero. If we keep it in tube from which much air is suck out. So air resistance is about zero.

Now, any small push like one micro Newton also give small additional velocity to this train by magnetic repulsion and if we give series of such push to this train by Magnetic repulsion. At every time, some velocity must gets added to this train velocity. There will be continuous increase in velocity of train as losses due to friction are not present.

Before going to actual design of space gun. I mention here some terms, which is used in design.

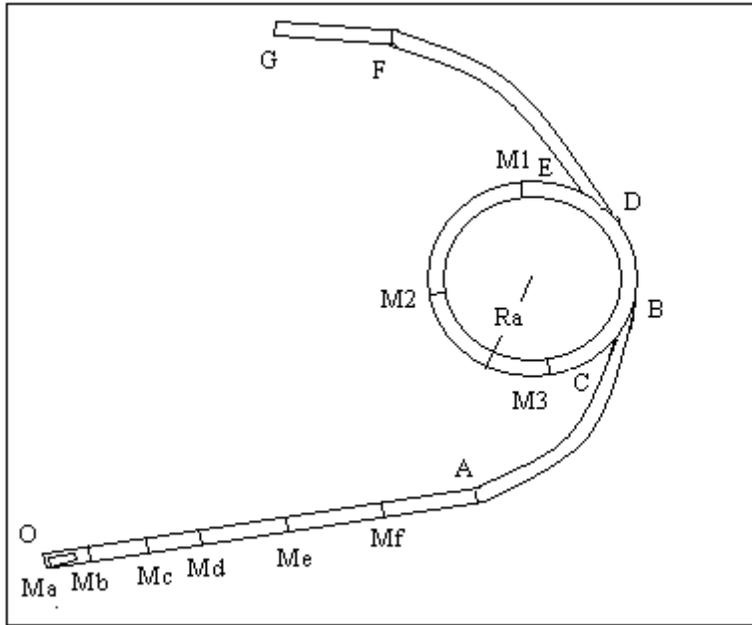
MAGNETIC EXPLOSION: - Let A be a train moving with some velocity V & M be magnetic coil. Let at the backside of train super conducting material is placed (As indicated by shaded line). In any shape like ring, plate etc. By computer control it is so adjusted that when bullet train just crosses magnetic coil current in magnetic coil starts flowing for second. (If possible make it with super conductive material.) & Magnetic field is form at the backside of train suddenly for fraction of second. I give a name magnetic explosion to this sudden formation of magnetic field, which gives push to this train from backside due to repulsion. As superconductor try to go away from magnetic field & as train is a bullet train so lifted from bed also. Then this push will add non-frictional some additional velocity to this train.

MAGNETIC ACCELERATOR: - here, Magnetic coil forming magnetic explosion is called magnetic accelerator.

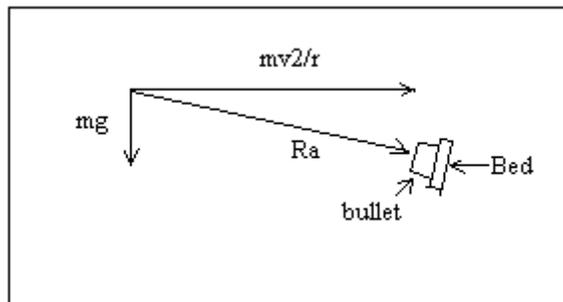
SPACE BULLET: -Space ship or satellite or any object, which is fired by space gun, is called space bullet.

DESIGN OF SPACE GUN

This magnetic gun will have shape as shown in figure. Here, OA is portion in which space bullet takes sufficient speed V . (So that in circular path, it will inclined by 87° (nearly) to horizontal so it will run on vertical bed in circular path. (On outer wall of circular path))



In between A & B radius of curvature goes on decreasing & by similar rate bed goes on inclining to horizontal. (As weight of space bullet remains same but centripetal force goes on increasing. Hence resultant of both becomes more and more horizontal.)



At point B, Radius should keep in such a way that angle of resultant R_a to horizontal plain as shown in figure will be up to 30° (not fixed may be adjusted to another possible angle also).

$$\begin{aligned} \text{So, } \quad \tan 30^\circ &= mg/(mv^2/R) = \tan\theta \\ &= gR/v^2 \\ \text{or, } R &= \tan\theta \times v^2 /g \end{aligned}$$

where, m & v are mass & velocity of space bullet & R radius of circular path.

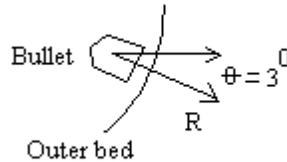
$$R = \tan^3 \theta \times v^2 / g$$

$$R = 4.122 \times 10^{-4} v^2$$

where, v – km/hr

R – meter

From point B onward, in circular path, after entry of bullet, Inlet BC will get closed and path becomes perfectly circular tube like. Here, outer wall surface keep slightly curve in nature. So, space bullet will slide by 3° as velocity goes on increasing.



From v to very great required value (essential for launching).

When space bullet reaches to that required value. Opening DE will open and on spiral path DF as radius of curvature goes on increasing inclined bullet & its vertical bed become horizontal or upright. After F space bullet will move on horizontal bed. This will fire it ultimately into sky. By providing some launching (rising up) apron facing towards sky.

General Working: -

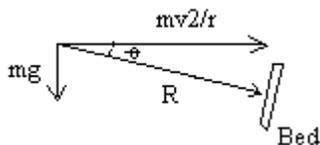
From O to A: -Let space bullet be of mass m is first lifted on horizontal bed at point O and pushed by magnetic explosion from coil placed back to it. So, it will start moving linearly. Then there will be series of magnetic explosion due to series of magnetic acceleration placed on the path, which increases the velocity, let, up to 426 km/hr. (which is some what less than bullet train speed) at point A.

From A to B:-From point A path curvature goes on decreasing & so, bed goes on inclining to horizontal.

$$\text{Resultant } R = \{(mg)^2 + (mv^2/r)^2\}^{0.5}$$

$$\& \tan \theta = (mg)/(mv^2/r) = gr/v^2 = k r$$

$$\text{Sec}^2 \theta d\theta = k dr$$



Here, as r goes on decreasing, θ also decreases. So, bed of sliding goes on inclining to horizontal. (As it is perpendicular to R always.)

In circular tube path: - When, bullet reaches to point B, θ become 3° . (general angle between resultant to horizontal plane & may change as per requirement.)

$$\tan 3^\circ = (g R)/v^2$$

$$R = \tan 3^\circ \times v^2/g$$

$$= 5.34228 \times 10^{-3} v^2$$

$$= 4.12213 \times 10^{-4} v^2$$

where, v is in Km/hr & R is in meter.

So, at v = 426 km/hr

$$R = 4.12213 \times 10^{-4} (426)^2$$

$$R = 75 \text{ m}$$

i.e. diameter 150 m is sufficient for circular path. (here only)

At point A when space bullet enters into circular tube, entry BC get closed & path of space bullet becomes perfectly circular. Let, N be number of accelerator in circular path. Let, every accelerator add velocity dv (averagely) to space bullet, then velocity after m rotation will be

$$\text{Velocity} = \text{initial velocity at A} + N \times m \times dv$$

Let, initial velocity at A is zero.

Then, $V = N \times m \times dv$

Here, M can be increase to any amount as it is only rotation in circular path.

Let, $N = 2$ accelerator

$$dv = 1 \text{ km/hr} = 0.277 \text{ m/sec (which is less than speed of walking person.)average additional velocity by each accelerator}$$

if require final velocity is v= 10000 km/hr.

Then, $10000 = 1 \times 2 \times m$

$$M = 5000 \text{ Rotation.}$$

Means, after 5000 rotations in circular path, space bullet will get speed, which is sufficient to fire it into space.

Initial velocity is zero & final is 10000 Km /hr.

Means , average velocity = 5000 km /hr = 1388.88 m/s

$$\begin{aligned}\text{Circumference of circular path} &= 3.14 \times 150 \\ &= 471.239 \text{ m}\end{aligned}$$

Time require for total operation (averagely)

$$\begin{aligned}T &= 471.239 \times 5000/1388.88 = 1696.4713 \text{ sec} \\ &= 0.47 \text{ hr}\end{aligned}$$

i.e. in less than hour we can get speed of 10000 km /hr in circular path.

From C to F: - when space bullet get sufficient velocity, outlet CG get open & space bullet travel on spiral path CF & again come on horizontal bed at point F.

From F to G: - As point F crosses by space bullet. **Airtight gate** at F divide FG part of gun and when bullet is in between F & G. G gate get open to atmosphere. (Here, air rushing from end G to E as whole tube FG has no air to avoid this resistance compressed air may blow in tube at point F suddenly). Then rising apron provided after point G in open air (or may close) throw the space bullet to require path into space.

Here, when we want to use gun again only pipe portion between F & G sucked out & vacuum is created by keeping F & G gate closed & then F gate is open again for bullet entry.

Here, whole tube portion i.e. from starting O to F is kept in partially vacuum condition always.

Times of India news of
date 5/11/2006

Massive 'launch ring' to fling satellites into orbit?

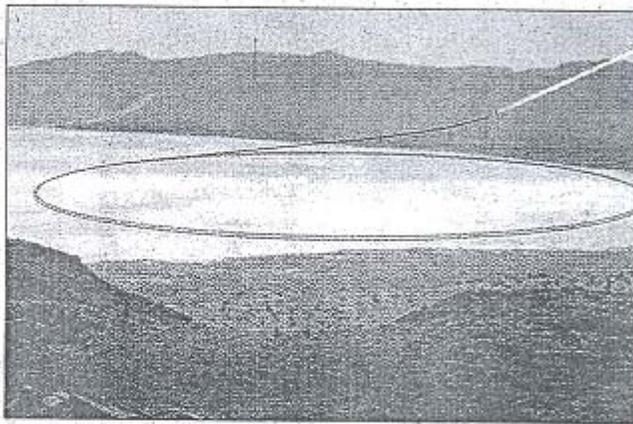
US Study Looks At Magnets To Accelerate Objects

An enormous ring of superconducting magnets similar to a particle accelerator could fling satellites into space, or perhaps weapons around the world, suggest the findings of a new study funded by the US Air Force.

Proponents of the idea say it would be much cheaper than conventional rocket launches. But critics warn that the technology would be difficult to develop and that the intense g forces experienced during launch might damage the very satellites being lofted into space.

Previous studies have investigated the use of magnets to accelerate satellites to the high speeds required for launch. But most have focused on straight tracks, which have to gather speed in one quick burst. Supplying the huge spike of energy needed for this method has proven difficult. The advantage of a circular track is that the satellite can be gradually accelerated over a period of several hours. And the setup is technologically feasible and cost effective, suggests a recent, preliminary study of the idea.

The air force has now given the go-ahead for more in-depth research of the idea. The two-year study will begin within a few weeks and be led by James Fiske of LaunchPoint Technologies in Goleta, Cali-



KING OF THE RING: An artist's rendition of the magnetic ring

fornia, US. The launch ring would be very similar to the particle accelerators used for physics experiments, with superconducting magnets placed around a 2-km-wide ring.

The satellite, encased in an aerodynamic, cone-shaped shell that would protect it from the intense heat of launch, would be attached to a sled designed to respond to the forces from the superconducting magnets.

When the sled had been accelerated to its top speed of 10 kilometres per second, laser and pyrotechnic devices would be used to separate the cone from the sled. Then, the cone would skid into a side tunnel, losing some speed due to friction with the tunnel's walls.

The tunnel would direct the cone to a ramp angled at 30° to the horizon, where the cone would launch towards space at about 8 kilometres per second, or more than 23 times the speed of sound. A rocket at the back end of the cone would be used to adjust its trajectory and place it in a proper orbit.

Anything launched in this way would have to be able to survive enormous acceleration - more than 2000 times the acceleration due to gravity. This would seem to be an obstacle for launching things like communications satellites, but Fiske points out that the US military uses electronics in laser-guided artillery, which survive being fired out of guns at up to 20,000g. AGENCIES

t
e
t
c
3
t
ti
we
er
pl
a s
La
We
the
.....
J
C
Dul
clud
at a
repa
A
Doh
are
wit
tab

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, Maryland
20771



APR 7 1992

Reply to Airm # 100

Mr. Mahesh Khati
Allipur
T - Hinganghat
Dist. - Wardha
Maharashtra
INDIA

Dear Mr. Khati:

Many thanks for your interest in the National Aeronautics and Space Administration (NASA) programs.

I have had your "Space Gun" paper reviewed by a member of my staff and he has judged that your concept is not within the current state-of-the-art. Further, there are some associated fundamental dynamic and aerodynamic problems involved. Our spacecraft are normally very fragile compared to what would be required in your concept. Moving through the Earth's atmosphere, at orbital velocity, to get to outer space would probably cause their disintegration.

We currently have no research fellowships available.

I applaud your inventiveness and enthusiasm.

Sincerely,

A handwritten signature in black ink, appearing to read "John M. Klineberg".

John M. Klineberg
Director

cc: 100/Ms. M. Stubbs
300/Mr. R. Baumann

Marshall Space Flight Center
Columbia Space Flight Center
Columbia, Maryland
20771

NASA

100

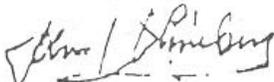
MAY 17 1993

Mr. Manish Khatri
Allipur
T. H. H. H. H. H.
B. H. H. H. H. H.
M. H. H. H. H. H.
H. H. H. H. H.

I have read your suggestion and we all are to each
impressed due to your suggestion. These will completely
change the present space science but in future, when man will
have colony on moon surface.

I applaud your inventiveness

Sincerely,



John M. Klineberg
Director

cc: 100/Mr. M. SCOBLE
100/Mr. R. BA...

भारत सरकार
अन्तरिक्ष विभाग
इसरो मुख्यालय

अन्तरिक्ष भवन,
न्यू बी ई एल रोड, बेंगलूर - 560 094, भारत
तार : इसरो दूरभाष : 23415474
दूर प्रतिचित्रण : 080-



सत्यमेव जयते

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE
ISRO HEADQUARTERS

ANTARIKSH BHAVAN,
NEW BEL ROAD, BANGALORE - 560 094, INDIA.
GRAMS : ISRO TELEPHONE : 23415474
FAX : 080-

March 9, 2007

Dear Mr Mahesh Khati

This has reference to your letter to the Chairman, ISRO with regard to the Space Gun model. It is really heartening to know your continued interest in the space arena.

As we understand, you have come out with the concept of Space Gun for launching satellites into orbit quite a few years back. Based on the limited inputs provided by you, what it looks like is that the initial accelerations that will be provided by the use of these systems are going to be quite large. And as these systems have to traverse through the dense atmospheric region where the aerodynamic loads are going to be quite severe it may pose lot of constraints on the design of the satellites itself. Anyway the idea looks quite bright.

Let me congratulate you for this innovative concept and wish you all success in the future.

Radhakrishnan D.
Scientist/ Engineer 'SF'
ISRO HQ

सतर्कतेने जीवदान

श्री / १४ नोव्हेंबर
: शेतातील
लेल्या महिलेला
मुलाच्या
नदान मिळाले. ही
यातील दहेगाव
तल घडली.
येथील श्रीमती
गय नगराळे या
डने यांच्या शेतात
ल्या होत्या. २
दुपारी ४ वाजता
यासाठी गेल्या.
काढत असताना
अंधागा नगराळे
ल्या. यावेळी
मुलगा प्रकाश
श्रीत पडल्याचा
तो विहिरीकडे
त्याने करीत
गराळे यांना
ढले. चंद्रमागा
द्रपूरच्या ग्रामीण
गरासाठी दाखल

इस्रोने दुर्लक्षित केलेले तंत्रज्ञान नासाने चोरले

अनंत कोळमकर/१४ नोव्हेंबर
नागपूर : उपग्रह प्रक्षेपणासाठी
इंधनाच्या लागणारा अवाढव्य खर्च
टाळण्यासाठी विद्युतचुंबकीय शक्तीचा
वापर करून हे प्रक्षेपण करण्याचा प्रकल्प
अमेरिकेची अंतराळ संशोधन संस्था
ठगसा' करीत आहे. मात्र ही मूळ
कल्पना भारतातल्याच एका तरुण
अभियंत्याची आहे. मात्र त्याची सूचना
संबंधित भारतीय अभियंत्याला देण्याचे
सौजन्यही नासाने दाखवले नाही. विशेष
म्हणजे हाच प्रकल्प इस्रोलाही पाठविला
होता. परंतु त्यांनी दुर्लक्ष केले अन्
नासाने ती कल्पना चोरून त्याचे श्रेय
आपल्याकडे घेतले.
मूळचे बर्मा जिल्हातील हिगणघाट
तालुक्यात असलेल्या अल्पपूरचे गदेश
खटी हे सध्या सार्वजनिक बांधकाम
विभागात सहान्यक अभियंता आहेत.
अभियंत्याने 'वर्तुळाकार मार्गावर काही
काळ उपग्रह फिरता ठेवून व हळूहळू
त्याचा विद्युतचुंबकीय वेग मोठ्या
प्रमाणात वाढवून उपग्रह प्रक्षेपित करता
येऊ शकतो. या व्यतिरिक्त इंधनाचीही
गरज भासणार नाही, हा निष्कर्ष त्यांनी

संशोधनातही काढला. हा निष्कर्ष त्यांनी
१९९२ मध्येच नासाला आणि भारतीय
संशोधन संस्था इस्रो' यांना पाठवला.
इस्रोने खटी यांच्या पत्राला साधी
पोचही दिली नाही. नासाच्या ग्रीनवेल
मेरीलॅण्ड येथील गॉडर्ड स्पेस फ्लाईट
सेंटरचे संचालक जॉन एम. क्लिनबर्ग
यांनी ७ एप्रिल १९९२ रोजी पत्राचे
उत्तर दिले. त्यात त्यांनी खटी यांच्या
संशोधनाचे कौतुक केले. या कल्पनेवरून
अभ्यास करण्यासाठी संशोधकाची समिती
गठीत केली व या समितीने ही कल्पना
विद्यमान परिस्थितीत शक्य नसल्याचे
सांगितले, असे या पत्रातून क्लिनबर्ग
यांनी कळविले होते.
खटी यांनी त्यामुळे नाउमेद न होता
आपले संशोधन सुरुच ठेवले व आपल्या
कल्पनेवर अहवाल तयार केला. त्यात
त्यांनी शास्त्रीय, सांख्यिकीय माहितीचा व
आवश्यक त्या गणितीय सूत्रांचा वापर
करून उपग्रह प्रक्षेपणासाठी विद्युत
चुंबकीय वर्तुळाकार धावपट्टीचे विस्तृत
विवेचन केले. हा विस्तार अभ्यास
अहवाल त्यांनी परत नासाला पाठवला.
१७ मे १९९३ रोजी क्लिनबर्ग यांचे

त्यांना परत उत्तर आले. त्यात त्यांनी या
संशोधनाचे स्वागत केले. सध्याच्या
अंतराळ विज्ञानाचे चित्र भविष्यात या
संशोधनाने निश्चित बदलेल, अशी आशा
क्लिनबर्ग यांनी या पत्रात व्यक्त केली.
मात्र चंद्रावर मानवी वसाहत होईल,
तेव्हाच खटी यांनी नमूद केलेली कल्पना
प्रत्यक्षात येऊ शकेल, असेही त्यांनी या
पत्रात स्पष्ट केले होते.
सध्या चंद्रावर मानवी वसाहत तयार
करण्याच्या दृष्टीने प्रयत्न सुरू आहेत.
याच प्रयत्नांतर्गत नासाने विद्युत चुंबकीय
वर्तुळाकार धावपट्टीद्वारे उपग्रह
इंधनाशिवाय प्रक्षेपित संशोधनाला वेग
दिला आहे. विशेष म्हणजे या
संशोधनाला अमेरिकी एअर फोर्स
अर्थपुरवठा करणार आहे. अमेरिकेतील
कॅलिफोर्निया राज्यातील गोलेट्टा येथील
लॉच पॉईंट टेक्नॉलॉजीचे जेम्स फिस्क हे
या संशोधनाचे नेतृत्व करणार आहेत.
विशेष म्हणजे या संशोधन प्रकल्पातील
जी वैशिष्ट्ये व शास्त्रीय तंत्र जाहीर
करण्यात आले आहे, ते शब्दशः श्री.
खटी यांनी १९९३ मध्ये नासाला
पाठवलेल्या अहवालाचेच आहे. त्यावर

शिकव मात्र नासाने स्वतःचा ताबला
आहे
विशेष म्हणजे हेच संशोधन खटी
यांनी भारतीय संशोधन संस्थेला,
इस्रोलाही पाठवले होते. पण इस्रोने खटी
यांना उत्तर तर सोडा, साधी पोचसुद्धा
दिली नाही. नासाने मात्र पोच दिली.
कौतुक केले. मात्र तेरा वर्षे हा अहवाल
स्वतःजवळ ठेवला अन् आता मूळ
संशोधनकर्त्याला न कळवताच ते
संशोधन स्वतःच्या नावावर खपविण्याचे
प्रयत्न सुरू केला. याबाबत खटी यांनी
प्रख्यात अंतराळ संशोधक व विद्यमान
राष्ट्रपती डॉ. अब्दुल कलाम यांना पत्र
पाठवून नासाच्या या प्रकल्पाबाबत
माहिती दिली आहे. या प्रकल्पाचा
आधार असलेली खटी यांची मूळ कल्पना
व त्याबाबत नासासोबत झालेल्या
पत्रव्यवहाराच्या प्रतीही त्यांनी राष्ट्रपतींना
पाठवल्या आहेत.
भारतातल्या एका युवा संशोधकाला
त्याय मिळवून देण्यात राष्ट्रपती असलेले
अंतराळ संशोधक क्राय गॅब्रिका
वठवतात, याकडे खटी यांचे लक्ष लागले
आहे.

वसान आदालत छेडण्याचा इशारा या
संघटनेच्या वतीने देण्यात आला.

त्यांच्या वान मुलांना मारहाण केली. एवढ्या

कारणाने अनेक कार्यकर्ते उपस्थित होते.